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CARDIOVASCULAR REJECTEES

A Follow-Up Study

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One of the most useful methods for the determination of the significance and importance of symptoms and signs and of the accuracy of their appraisal is the follow-up study of the subjects in whom they are observed.

In 1943, reports [1] were published of the reexamination of 4,994 men disqualified for general military service in the armed forces of the United States of America, during World War II by local boards and induction stations, because of the diagnosis of cardiovascular defects. This was a combined study made by special medical advisory boards, consisting of cardiovascular experts in the five cities of Boston, Chicago, New York, Philadelphia and San Francisco, with the invaluable cooperation of the state and city directors of Selective Service. The reader is directed to the original reports for the description of the plan of procedure, the names of the members of the various teams and the details of the findings. For convenience, however, the more important data and the most significant conclusions of these reports will be presented herewith as background for the follow-up study made in 1947.

The chief reasons for the reexamination in 1943 were to determine (*a*) the problems in cardiovascular diagnosis that particularly concern the range of the normal cardiovascular system with respect to service, (*b*) the possible salvage of men for the army by reclassification as 1A [2] and (*c*) the comparison of opinions of cardiovascular experts with those of the examiners of local boards and induction stations to determine the desirability of such reexaminations in this or other special medical fields throughout the country.

Of the total number of 4,994 cardiovascular rejectees reexamined in 1943, 863 (17.3 per cent) were resubmitted as 1A. Chicago yielded the lowest salvage (3.88 per cent), probably because cardiovascular experts had already been freely used in the decision about doubtful cases, a worth while example to follow and one that would obviate the need of such full scale reexaminations in the future.

In 1943, there were eight problems of particular interest which remained unsolved and were in need of follow-up study.[1b] They were as follows:

. . . (a) the interpretation of apical systolic murmurs (may they, if very slight or even slight, in the absence of any other abnormal or doubtful finding, be considered inadequate reason for rejection?); (b) the upper limits of the normal blood pressure (may the systolic pressure in very nervous young men be set perhaps as high as 160 mm. Hg. or even a shade more, provided the diastolic pressure does not exceed 90 mm. Hg.?); (c) the limits of the normal pulse rate at rest (may there not be a wider range, say from 40 to 120 per minute, than that actually given in the current criteria?); (d) the heart size, which also varies widely, especially according to body build, and may perhaps in a few normal individuals exceed the standards set by Hodges and Eyster; (e) the electrocardiogram, of which the wide range of normal has not yet been explored adequately; (f) neurocirculatory asthenia, difficult to diagnose in mild degree, but probably rejectable even when slight, unless there is an obvious cause which can be corrected; (g) recent rheumatic fever, a hazard even when the heart seems perfectly normal; and (h) exercise tests, the usefulness of which, in cardiovascular examination for military service, is open to question.

Finally, it was predicted that

A follow-up study of the men reclassified as 1A and especially of the doubtful "borderline" cases in the final 4F [3] group should, in the years to come, aid in solving some of the various problems in cardiovascular diagnosis that still remain.[1b]

It seemed appropriate to make a first follow-up study in the spring of 1947, four years after the first reexamination study and long enough after the end of the war to assess the effects both of the war itself and of the postwar adjustment. This was done in the case of as many of the men who had been resubmitted as 1A in 1943 as could be reached in 1947. Some of the men who still present diagnostic problems should be followed up again in the future.

Because of lack of space this article has been abbreviated in THE JOURNAL. The complete paper will be found in the authors' reprints, which the authors will be pleased to send on request.

The work described in this paper was begun under a contract recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Columbia University. The contract was transferred on Nov. 1, 1945, from the Office of Scientific Research and Development to the Army Research and Development Board, Office of the Surgeon General.

1. (*a*) Levy, R. L.; Stroud, W. D., and White, P. D.: Report of Reexamination of 4,994 Men Disqualified for General Military Service, J. A. M. A. **123**: 937 (Dec. 11) 1943. (*b*) Fenn, G. K.; Kerr, W. J.; Levy, R. L.; Stroud, W. D., and White, P. D.: Reexamination of 4,994 Men Rejected for General Military Service Because of the Diagnosis of Cardiovascular Defects: Individual Reports by the Chairmen of Special Medical Advisory Boards in Five Cities in Which the Combined Study was Made, Am. Heart J. **27**: 435 (April) 1944.

2. The classification 1A, as used in this discussion, denotes fitness for full military duty with respect to the cardiovascular system. It does not exclude disqualification for other medical defects.

3. The classification 4F in this report denotes unfitness for any military service because of cardiovascular reasons.

Of special "borderline" cases, of which there were 114 in Boston labeled "1A liberal," but not resubmitted for military service, 67 were also followed and will be discussed in an appendix to the present report; they formed an especially interesting group.

PRESENT FOLLOW-UP STUDY

The plan of procedure of examination in the five cities of Boston, Chicago, New York, Philadelphia and San Francisco in 1947 was essentially the same as in 1943, the standards used were identical in order to permit adequate comparison, and with rare exceptions the teams consisted of the same personnel, both medical and lay. As before, the directors of Selective Service were most helpful.

On this occasion, however, fewer of the men were available for two reasons: First, they came entirely voluntarily and many had had their fill of examinations; second, many had moved away, either from their original addresses in the cities in question or to other parts of the country. Nevertheless, an adequate number was reexamined to afford information of value: 134 in Boston, 93 in New York, 39 in San Francisco, 29 in Philadelphia and 8 in Chicago, a total of 303. Of this total of 303, all but 49 had been admitted to military service; of these 49 who were exempted a second time, 28 were rejected for medical reasons (mostly noncardiac) by the induction station or local board, and the other 21 were excluded for other reasons. The great majority of those admitted to the armed forces were finally discharged without disability after an average of two and one-half years of military service.

Among the 227 men reexamined in Boston and New York in 1947, 178 had been admitted to military service. Of these, 37 were discharged as disabled after an average of one year. Of these 37, there were 23 with noncardiac diagnoses and 14 with cardiovascular labels; the latter included "hypertension," "valvular disease," "coronary disease," "neurocirculatory asthenia" and "uncertain."

Several of the men reexamined had been wounded (10 from Boston and 2 from New York), and several had been decorated for valor. Of the originally resubmitted "1A group," 8 were killed in action.

At the time of follow-up study in 1947 almost all the men reexamined were in excellent or good health (259 of the 303) and were working. Several of those not working could not find jobs or were students. Only 4 were actually disabled.

The range of age of these men, four years older than at the first reexamination, was from 23 to 42, averaging about 30.

THE PARTICULAR CARDIOVASCULAR FINDINGS

The problems referred to in the 1943 report will be discussed in sequence.

A. Murmurs.—Although not the most difficult of the findings to assess, cardiac murmurs were the commonest. Armed with the established fact that very slight to slight systolic murmurs at the apex and pulmonary valve area can be within the normal range and are not to be construed as evidence of heart disease unless there are other associated signs, in particular cardiac enlargement, the special boards did not have much difficulty in assessing their significance and importance. A murmur of this type can be produced, for example, by the speeding up of the circulation through exercise in a perfectly normal young person who shows no murmur at all on rest. In many of the young men in question, there was also at the time of examination a certain amount of nervous stimulation which could act in a similar manner.

The loudness of murmurs has been shown to be clinically significant,[4] and so an attempt was made in some of the cases in this study to record the loudness and to assess the murmurs accordingly. In Boston, the examiners graded the murmurs on a scale of five (grade 1, very slight; grade 2, slight; grade 3, moderate; grade 4, loud; grade 5, very loud) and noted that the comparison of the intensities of the murmurs in 1943 and in 1947 was easier in consequence. Slight (grade 2) systolic murmurs at the apex are borderline or open to careful scrutiny, as is also true of systolic murmurs of moderate intensity (grade 3) at the pulmonary valve area, especially when the pulmonary second sound is unduly accentuated. Aortic systolic murmurs were much less common in our examinees, as they are in normal young men in general, and doubtless should be considered abnormal when more than very slight (grade 1) in intensity. Diastolic murmurs anywhere were adjudged abnormal.

The commonest cause of abnormally loud systolic murmurs in young men is rheumatic heart disease, and here either valvular deformity or cardiac dilatation, or both, may be responsible. Congenital cardiac defects and other causes are relatively rare. An attempt was made to diagnose the etiologic factor behind overloud murmurs. In only 4 cases of the 303 was a diagnosis of valvular ("rheumatic") heart disease made in 1947, and in at least 1 of these rheumatic fever was known to have occurred during military service. In 6 other cases the diagnosis of questionable valvular heart disease was made in 1947 on the basis of some increase in the loudness of murmurs.

Thus, although prior to our first reexamination in 1943 the commonest diagnosis causing the original rejection by local boards and induction stations of the men resubmitted by us as 1A was valvular ("rheumatic") heart disease, the present four year follow-up has not indicated that the problem is an important or difficult one for the cardiovascular expert. Future follow-up studies of cases of murmurs are, to be sure, still in order, but the evidence to date indicates the considerable value in the way of salvage of using cardiac consultants in the original appraisal of doubtful auscultatory findings.

Actually, murmurs were found to be common among these young men, but such murmurs were very slight (grade 1) or at most slight (grade 2) and almost entirely limited to the cardiac apex and pulmonary valve area. For example, in Boston among the 134 men examined, 79 (59 per cent) had murmurs and in only 2 was valvular heart disease diagnosed, 1 on the basis of slight mitral and aortic diastolic murmurs which had appeared since 1943 and the other on the basis of a grade 2 aortic systolic murmur. Of the other 77 men, 58 had apical systolic murmurs in 1943 or 1947, on both occasions in 29 instances (44 per cent of the 131 men without heart disease), while only 8 had aortic systolic murmurs, in 3 of whom the murmur was heard in both 1943 and 1947. There were also a few men (11) with very slight or slight "precordial" systolic murmurs and many with the unim-

4. Baker, L. A.; Sprague, H. B., and White, P. D.: The Clinical Significance of Loud Aortic and Apical Systolic Heart Murmurs Without Diastolic Murmurs, Am. J. M. Sc. **208**: 31 (July) 1943.

portant pulmonary systolic murmur. It is of much interest that many of these murmurs were heard on only one of the two occasions. Thus, murmurs heard in 1943 and not in 1947 could be truly labeled as transient—there were 28 such cases; in only 2 of them was the murmur more than very slight.

In New York, an apical systolic murmur was heard in 37 of the 93 men reexamined in 1947, and in 30 instances these murmurs had been heard also in 1943, while in 7 men an apical systolic murmur heard in 1943 was no longer detected in 1947. Thus, a total of 44 (47 per cent) of these men showed such a murmur in either 1943 or 1947 or both. For 2 of the men in whom murmurs were heard in 1947, the diagnosis was "rheumatic heart disease." In 2 of those with apical systolic murmurs in 1947, very slight aortic systolic murmurs were also heard, but no diastolic murmurs at all were encountered.

Similar experiences were noted also in the other cities.

B. Blood Pressure.—The most difficult problem and one that remains unsolved by our more recent reexamination is the appraisal of "borderline" blood pressure levels. These are readings a little over 150 mm. mercury systolic or 90 mm. diastolic, especially the former, when they occur transiently, that is, at the beginning of the examination followed by subsidence on quiet rest for a half hour. It is true that the study which was carried on during the recent war [5] of the annual blood pressures of 22,741 officers in the United States Army recorded over a period of many years showed a distinct tendency for the establishment of permanent hypertension and eventual cardiovascular disability among those showing transient hypertension in their earlier years, especially when they were also overweight and showed transient tachycardia; nevertheless, there were many men among those officers who, following the occurrence of transient hypertension, never showed permanent hypertension. That, in general, appears to be the finding in the present study, but the number is small and the period of follow-up is short, so that further observation of our cases after longer intervals will be necessary to discover what features distinguish the two groups.

Of 67 men among the total of 303 who showed transient hypertension in 1943, 33 had normal blood pressure readings in 1947, 17 still showed transient hypertension and 17 were found to have sustained hypertension; the Boston figures were 8, 9 and 13, respectively, and those from New York were 17, 6 and 3. Of those with normal blood pressure readings in 1943, 13 showed transient hypertension in 1947 and in 10 others sustained hypertension had developed. Incidentally, there were 5 men in 1943 who did not quite achieve the normal limits after resting and who showed normal levels in 1947, either at once (2 cases) or after resting (3 cases).

An attempt has been made to note correlations in these cases of borderline blood pressure with weight and pulse rate, but the results to date are not conclusive. Among the 8 men in Boston with transient hypertension in 1943 and normal blood pressure readings in 1947, 3 were overweight and had gained more weight over the interval of four years. Two of the 8 had transient tachycardia in 1943, and 1 showed transient tachycardia in 1947. Of the 13 men in Boston with transient hypertension in 1943 who showed more sustained hypertension in 1947, 7 were overweight and several had gained a great deal, namely 39 pounds (17.7 Kg.), 26 pounds (11.8 Kg.) and 31 pounds (14.1 Kg.). Five of these 13 had had transient tachycardia in 1943 and 8 showed transient to sustained tachycardia in 1947. Of the 9 Boston men with transient hypertension in 1943 who still showed transient hypertension in 1947, 6 were overweight, 1 showed tachycardia in 1943 and 1947 and 1 showed tachycardia in 1947. Of 6 men in the Boston group with normal blood pressure in 1943 who showed transient hypertension in 1947, 3 were overweight, 1 showed transient tachycardia in 1943 and also in 1947 and another showed transient tachycardia in 1947. Of 6 persons with normal blood pressure in 1943 who showed sustained hypertension in 1947, all were overweight and 1 showed transient tachycardia on both examinations.

Two of the men with transient hypertension in 1943 who showed normal blood pressures in 1947 had a family history of hypertension. Two of the 9 men with transient hypertension in 1943 and transient hypertension in 1947 had a family history of hypertension. Of the 6 with normal blood pressure in 1943 and transient hypertension in 1947, 2 had positive family histories, and of the 6 with normal blood pressure in 1943 and sustained hypertension in 1947, 1 had a positive family history and 1 had a questionable family history. Of the 13 men who had transient hypertension in 1947 and more sustained hypertension in 1947, 6 had a family history of hypertension and 1 had a questionable family history of hypertension.

These findings are suggestive with particular reference to the importance of overweight, but there are obviously many exceptions and a longer follow-up study will be necessary.

C. Pulse Rate.—The next problem concerns the heart rate and, in particular, tachycardia. Rates above 100 a minute were acceptable in 1943 if they slowed with rest, that is, if tachycardia was transient. Slow pulse rates, below 50, were rare and were not a problem, provided electrocardiography was available. Transient tachycardia was commoner in 1943 than in 1947; many of the men (19 of 35) showing temporarily fast pulses before had normal rates the second time, several (13) still showed transient tachycardia and only 3 had sustained tachycardia. Several men (11) with normal heart rates in 1943 showed, on the other hand, transient tachycardia in 1947, and 2 had sustained tachycardia. One of these was conspicuously obese, weighing 251 pounds (113.8 Kg.) in 1943 and 262 (118 Kg.) in 1947. Two men whose heart rates had persisted at a level slightly above 100 in 1943 showed normal heart rates and blood pressures in 1947.

D. Heart Size.—The range of the so-called normal heart size is great and as yet ill defined. In 1943, it was agreed by our examining teams that the predicted transverse diameter of the heart shadow on the teleroentgenogram according to the Hodges-Eyster stand-

5. Hillman, C. C.; Levy, R. L.; Stroud, W. D., and White, P. D.: Studies of Blood Pressure in Army Officers: Observations Based on an Analysis of the Medical Records of 22,741 Officers of the United States Army, J. A. M. A. **125**: 699 (July 8) 1944. Levy, R. L.; Hillman, C. C.; Stroud, W. D., and White, P. D.: Transient Hypertension: Its Significance in Terms of Later Development of Sustained Hypertension and Cardiovascular-Renal Diseases, ibid. **126**: 829 (Nov. 25) 1944. Levy, R. L.; White, P. D.; Stroud, W. D., and Hillman, C. C.: Transient Hypertension: The Relative Prognostic Importance of Various Systolic and Diastolic Levels, ibid. **128**: 1059 (Aug. 11) 1945; Transient Tachycardia: Prognostic Significance Alone and in Association with Transient Hypertension, ibid. **129**: 585 (Oct. 27) 1945; Overweight: Its Prognostic Significance in Relation to Hypertension and Cardiovascular-Renal Diseases, ibid. **131**: 951 (July 20) 1946; Sustained Hypertension: Predisposing Factors and Causes of Disability and Death, ibid. **135**: 77 (Sept. 13) 1947.

ards for age, height and weight should, with rare exceptions, be used as our guide and that, if the actual measurement were more than 1 cm. greater than the predicted transverse diameter, cardiac enlargement would be diagnosed and the man excluded from the 1A group. In 1947, only 4 of the 303 men (1.3 per cent) showed an increase in heart size above the normal upper limit agreed on, although 7 others were "borderline." One of the 4 men with abnormal increase in heart size was hypertensive; the condition in the other 3 was unexplained. A number of men showed appreciably smaller measurements in 1947, including several who were "borderline" or very slightly above in 1943 (but were judged normal for their build because they had very wide chests); these decreases in size, as well as the increases in size, were usually slight and thought to be within the range of error of measurement and physiologic variation. In a few men there was some change in shape, especially an increase or decrease in the pulmonary artery shadow, sufficient in 1 to raise the question of a diseased state. In 1 man an overprominent pulmonary artery without other abnormalities was noted to be present in 1943, as well as in 1947, and raised the question of a congenital defect.

E. Electrocardiogram.—Here there was little difficulty, despite the fact that the range of the normal was wide and a few doubtful cases were encountered. Four men (1.3 per cent) showed minor changes or questionable abnormalities in 1947 not present in 1943; the causes for such changes were obscure; they could be physiologic, although rheumatic, hypertensive and coronary causes must be under suspicion. These changes consisted of some lowering of the T waves or slight changes in their shape, and in 1 man very slight widening of the QRS complexes. A fifth case showed a clearly prolonged P-R interval (0.24 second). Of 4 men with "borderline" electrocardiograms in 1943, those of 2 were unchanged in 1947, one looked a little more normal and one slightly less so. One man classified as 1A in 1943, despite a slightly abnormal electrocardiogram (low T waves in lead I) showed the same record in 1947.

F. Neurocirculatory Asthenia.—There was not much of a problem here either, in large part because of rejection of men with clearcut disease in the first place by local boards and induction stations, confirmed by our special cardiovascular examiners in 1943. Seven men were thought in 1947 to have neurocirculatory asthenia, not diagnosed in 1943, and there were 6 questionable cases.

G. Rheumatic Fever.—Despite the fact that a considerable number of the men had had rheumatic fever in the past (for the most part more than five years prior to induction), only 2, and perhaps a third, had had active rheumatism between 1943 and 1947. All 3 showed rheumatic heart disease in 1947 not diagnosed by the special examining boards in 1943. In Boston, 1 of these men was among 20 with a rheumatic history and another occurred among a similar group of 20 in New York. No men from the total group of 303 showed rheumatic heart disease who had had no history of rheumatism.

The New York experience is of special interest. Nineteen men gave a history of rheumatic fever prior to the first reexamination in 1943; one gave a history of chorea. The average time elapsing between the last episode of rheumatism and 1943 was 11.7 years; the range was from one to twenty-four years. In only 2 instances was this interval less than five years. Of these 20 men with a history of rheumatic fever, 16 saw active service, 3 were rejected for a second time after having been passed by the special board and 1 was deferred because of occupation. Two were discharged from the Army after having been in service for less than one year—with the diagnosis of neurocirculatory asthenia and 1 because of a neuropsychiatric disorder. In not a single instance in these 20 men was there a recurrence of acute rheumatic manifestations or of carditis. One who did not see service, and in whose case a diagnosis of rheumatic heart disease was made by the special examining board in 1947—a reversal of its previous opinion—said he felt occasional mild joint pains during his life as a civilian between 1943 and 1947.

Follow-Up Study of Cardiovascular Rejectees by the Veterans Administration, September 1948

	Discharged for Cardiovascular Conditions											
	Rheumatic Fever	Rheumatic "Valvular" Heart Disease	Hypertension	Neurocirculatory Asthenia or Anxiety Neurosis	Other Diagnoses	Total	Discharged for Other Conditions	Discharged for Non-medical Reasons	Discharged by Death *	Discharged for Disability—Record Not Obtainable	No Record of Discharge for Disability; No Claim	Total
Boston	7	0	1	4	1	13	9	..	4(3*)	30	45	101
Chicago	1	1	0	1	0	3	1	..	.....	7	11	22
New York	9	1	2	8	0	20	16	2	1	55	46	140
Philadelphia	0	0	0	1	0	1	6	2	4(3*)	20	46	79
San Francisco	0	2	2	2	1	7	8	1	2(2*)	41	46	105
Total	17	4	5	16	2	44	40	5	11(8*)	153	194	447 (248 have claim)

* Number killed in action.

REPORT OF FOLLOW-UP STUDY BY VETERANS ADMINISTRATION

Dr. Traum, Dr. Wilcox, Dr. Robb and Dr. Kistin of the Veterans Administration sent us the following summary of the men who came under their jurisdiction among the total group of 447 who were accepted for military service of the 863 men resubmitted as 1A in 1943 by the special cardiovascular boards in the five cities involved. It is hoped that those men in their lists whom we ourselves have not yet reexamined may some day be reviewed by our groups for a more complete follow-up study.

In the table is given a summary of the Veterans Administration data which adds to the information obtainable at present, although the summary includes

a number of men whom we ourselves have not yet reexamined and data on whom do not, therefore, appear in our own report.

SUMMARY AND CONCLUSIONS

1. A follow-up study was made in 1947 by special cardiovascular boards in Boston, Chicago, New York, Philadelphia and San Francisco of 303 young men who had been originally rejected for military service because of diagnoses of cardiovascular disease, hypertension or neurocirculatory asthenia, but later resubmitted as 1A in 1943 after examination by these same special cardiovascular boards.

2. Certain problems are reviewed in the light of this reexamination. Heart murmurs were the commonest cause for the original rejections, but their appraisal by the cardiologists was not considered difficult. The great majority of the murmurs were variable, unimportant and physiologic in type, being heard in at least half of these healthy young men. In 4 men rheumatic heart disease developed during the four years.

3. The most difficult problem was that of the appraisal of slight elevations of blood pressure, in particular of transient hypertension (over 150 mm. systolic or over 90 mm. diastolic, subsiding after one-half hour's rest). Of 67 men showing transient hypertension in 1943, 33 showed normal pressure readings in 1947; 17 still showed transient hypertension, and 17 had sustained hypertension. Thirteen with normal pressure in 1943 showed transient hypertension in 1947, and in 10 sustained hypertension had developed.

4. Of 35 with transient tachycardia in 1943 (heart rate over 100 subsiding after one-half hour's rest), 19 showed no tachycardia in 1947. In a few cases the reverse was true. Another study has shown that transient hypertension and transient tachycardia are of about equal prognostic importance with regard to the later development of sustained hypertension.

5. Heart size as measured by teleroentgenograms showed only minor variations, up or down, between the examinations in 1943 and those in 1947. In only 4 men did definite enlargement of the heart develop.

6. Electrocardiography also presented little difficulty. There were a few borderline cases noted on both occasions, but only one showed a distinct abnormality at the end of the four years.

7. Neurocirculatory asthenia was an uncommon development over the four year period—there were 7 men whose condition were so diagnosed in 1947 who were considered to be normal in 1943.

8. Valvular lesions indicating rheumatic heart disease, not evident in 1943, were noted in 4 men in 1947. Many others gave a history of rheumatic fever in childhood or early adult life, but showed no sequelae.

9. In general, the 303 men served long and well in the armed forces, even though a few were discharged for cardiovascular reasons and, like others of the group with noncardiac disorders, are now under the jurisdiction of the Veterans Administration. Eight of the 447 original rejectees who were accepted for service were killed in action. In the group with a history of rheumatic fever in early childhood or early adult life, recurrence of activity between 1943 and 1947 was distinctly uncommon, even in those who saw active war service. In almost all, rheumatic fever had occurred at least five years before induction. Valvular lesions indicating heart disease, not evident in 1943, were noted in only 4 men in 1947.

PHYSICAL TREATMENT OF POLIOMYELITIS

Responsibilities of the Physician in General Practice

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By choice and by necessity, the physician in the general practice of medicine is frequently called on to care for any or all phases of acute anterior poliomyelitis and must therefore be prepared to use certain diagnostic and therapeutic tools of physical medicine. This discussion will be limited to the responsibilities of the physician utilizing those tools in the care of the after effects of poliomyelitis during the convalescent stages.

No known method of treatment, chemical or physical, can appreciably alter the patterns of destruction wrought by the invasion of the virus in the central nervous system during the acute stage of the disease. The extent of recovery obtained in any individual patient still depends on the physician's ability to make the most effective use of those neuromuscular units left intact after all inflammation has subsided in the central nervous system. To this end great progress has been made, particularly in the physical treatment of the convalescent stage, but the more that is known about the treatment of the after effects of this disease during convalescence, the more difficult it becomes. The increasing success of such treatment has been due to the development of highly refined routines of care which must be carried out with great precision over long periods of time.

However, no magical formula for mixing together heat, massage and exercise has been discovered. The value of physical treatment is completely dependent on the ability of the physician first to evaluate the specific needs of his patients and, on the basis of this knowledge, then outline the individual programs of care. No physician should undertake the care of convalescent poliomyelitis unless he thoroughly appreciates the responsibilities that he must assume and the physical tools with which he must work to fulfil these responsibilities.

First of all, the physician must be able to evaluate accurately the site and extent of neuromuscular involvement. No form of treatment can be intelligently prescribed unless based on this knowledge. The strength of individual muscles and muscle groups can best be determined by the so-called manual muscle strength test. This test is one of the diagnostic measures utilized by physical medicine and is based on the ability of the patient voluntarily to contract specific muscle groups so that the bodily segments activated by these muscles move through specific planes of motion against known resistance. These tests are accurate and trustworthy only when performed by the physician or therapist skilled in functional anatomy and kinesiology.

All physicians should be able to make a consistently accurate muscle test or, at least, be able to understand thoroughly the results of such a test when done by another physician or therapist. This test is part of the data absolutely necessary for the intelligent use of such physical agents as muscle reeducation, gait training and the use of assistive, supportive and protective apparatus. Simply to permit a patient to sit up in bed might

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be extremely dangerous unless the status of the muscle groups about the trunk, neck and upper extremities is known.

At the present time, no other type of test will give us the practical information as does the manual muscle strength test. The determinations of the electrical excitability of nerve and muscle by plotting strength-duration curves, chronaxia, tetanus ratio and the like are of very limited value in the spotty type of central nervous system lesion found in poliomyelitis—except in the differential diagnosis of such conditions as the primary myopathies, polyneuritis, hysteria or malingering. Likewise, electromyographic studies have little practical clinical significance at the present time. Therefore, the evaluation of the extent and site of neuromuscular involvement which forms the basis for all treatment of poliomyelitis must depend on the physician's ability to do an accurate manual muscle strength test or accurately interpret the results of this test when done by another physician or therapist.

The physician must next be able to obtain effective action of all remaining neuromuscular units, either through his own personal use of physical treatment or through his prescription to the trained therapist. Effective use of the intact neuromuscular units can be accomplished only by therapeutic exercise in the form of specific muscle reeducation followed by the specific functional retraining of bodily segments. In the moderately or severely involved patients, such treatment must be carried out intelligently and meticulously over many months or even years. It is this phase of treatment that forms the keystone of the over-all program of care. Unless the involved muscles are trained to work coordinately and with maximum strength and endurance, the most effective use of the neuromuscular units left intact after the initial damage to the central nervous system can never be realized. No athlete in his physical endeavors ever needed a coach so much as these patients need muscle reeducation, because the patient must be assisted to achieve normal functional capacity with far less than normal numbers of available motor nerve cells and muscle fibers. Too often the parents are told that their child will "outgrow" his weakness only because the physician does not appreciate the value of skilled muscle reeducation or has long forgotten his functional anatomy and is at a loss to give or prescribe the proper care.

The physician must next be able to anticipate and correct or minimize the factors responsible for musculoskeletal deformities. Unfortunately, poliomyelitis is complicated by the tendency toward the development of pathologic sequelae caused by, but far removed from, the damage to the lower motor neurons in the central nervous system. When the function of these cell masses is lost in whole or in part, changes in the musculoskeletal system must follow. It is true that one can do nothing to prevent the weakness and atrophy that must follow actual denervation of muscle fibers, but one can and must prevent the structural changes that develop in bodily segments inadequately supported. These changes or deformities have just one cause: persistent faulty alinement of the bodily segments.

These faulty positions may occur during periods of so-called rest if the segments are held in abnormal alinement by such factors as weakness, pain and muscle spasm. Here, physical medicine combats such distortion by supporting weakened segments in normal alinement by pillows, sand bags and, when necessary, light splints that can be easily removed to permit the application of other forms of treatment. Pain can be relieved and spasm released by the intelligent use of heat, massage and passive motion. The use of hot packs has been widely advocated, but many other forms of heat, if properly applied, will give similar results. In some cases, massage is soothing and relaxing and should be used even in the acute stage. In other cases, massage is irritating and cannot be used with beneficial effects until the inflammation in the nervous system has quieted down. Passive motion is probably the most important single factor in physical treatment during the early convalescence because it helps prevent contractures of muscular, ligamentous, fascial and periarticular structures, assists venous and lymphatic circulation and establishes reflex tone in reinnervated fibers. Like all other valuable therapeutic measures, it may be harmful if used carelessly and too vigorously.

Many musculoskeletal deformities occur and/or progress rapidly because of faulty use of bodily segments during daily physical activity, particularly during the years of rapid bone growth in childhood and adolescence. All activities must be carried out with as nearly normal patterns of motion and as nearly normal alinement of bodily segments as possible if distortion of bony and other supportive structures is to be kept at a minimum. The physician must not only be capable of noting the earliest deviations from normal patterns of motion and weight bearing but must also be capable of correcting or minimizing these faults through functional training and, when necessary, the use of assistive and supportive apparatus, such as corsets, braces and crutches.

Finally, the physician should appreciate the frequent need for, and value of, certain orthopedic surgical procedures during the convalescent stage. In general, it has been stated that when orthopedic surgical treatment is indicated to correct deformity, increase functional capacity and assure future security of bodily segments, it should be deferred until the chronic stage or, in children, after bone formation is well advanced. This is only partially true. Relatively simple surgical procedures, such as tenotomies of the iliotibial band or heel cord, if done early in the convalescent program, often permit restoration of bodily alinement possible in no other way; they not only prevent irreversible and severely handicapping structural changes from taking place but also permit the more effective use of muscle reeducation and functional training.

Physical medicine must not be thought of as in competition with orthopedic surgery. It is essential that the physician caring for the convalescent phase of this disease foresee the possibilities of later surgical procedures and through his treatment maintain the involved segments in such condition that, if necessary, the surgeon can add to the patient's greater functional capacity and security at the optimum time in the over-all program for maximum rehabilitation.

SUMMARY

The physician who assumes the responsibility of the physical treatment of convalescent poliomyelitis must be prepared to: (1) evaluate the site and extent of neuromuscular involvement, (2) obtain coordinate and effective use of all remaining neuromuscular units, (3) prevent or minimize the development of musculoskeletal deformities, (4) appreciate the frequent need for certain orthopedic surgical procedures during the convalescent stage and (5) foresee and prepare the involved bodily segment for any necessary orthopedic surgical treatment in the chronic stage.

PHYSICAL TREATMENT OF BACKACHE

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Pain low in the back is a common reason for patients to seek medical aid. Many backaches may be diagnosed roentgenologically as resulting from congenital anomalies, bony deformities, traumatic injuries to bone, arthritic changes, metastatic tumors or, occasionally, metabolic changes. In patients with such disorders the treatment prescribed depends on the pathologic changes found. However, there is a larger number of patients in whom the backache is not due to demonstrable bony change. In many of these patients the pain may be poorly localized. Although relief of pain, to a large extent, depends on removal of the cause, the mechanism of response to injury to the back affects the intensity and duration of pain. Therefore, these responses to injury influence treatment of painful injuries of the low back.

MECHANISM OF BACKACHE

When the back is injured, whether the injury be to fibrous, muscular or bony tissue, stimulation of pain endings initiates a reflex muscle spasm causing extensive contraction of the back muscles and limitation of motion. This reflex muscle spasm or splinting appears to be protective to immobilize the injured area and allow the normal mechanism of repair to occur. The muscle spasm may be localized around the site of the injury, or it may be generalized over the muscles of the back, the hips and, often the lower extremities. Muscle spasm for a prolonged period produces pain in the muscle involved and also pain at the attachment of the muscle to bone. Therefore, one finds that when muscle spasm has been present for a time the muscle belly is tender to palpation, but often the site of bony attachment is even more tender. Almost routinely when muscle spasm has been present, there will be tenderness along the iliac crests, over the sacrum or over the vertebral spines or transverse processes where the muscles in spasm have their attachment. This tenderness is not caused by the original injury but is related to the secondary muscle spasm. Thus, the mechanism of muscle spasm, although originally protective, may aggravate and extend the painful area in the back.

It is observed frequently, when minor trauma to the back has occurred, that after several days of muscle spasm the original site of pain is nontender but the pain and tenderness induced by the prolonged muscle spasm are sufficient to maintain the cycle. Relief of muscle spasm in these cases brings prompt relief of all symptoms. Another property of prolonged muscle spasm is that fixed limitation of motion is produced. Just as fibrous tissue is laid down to form the scar in injury to the skin, so also is it laid down in injured muscle and also in normal muscles if they are immobilized. This production of scar tissue with fixation of muscle fibers progresses relatively rapidly. Frohlich and Meyer [1] reported that fibrous contractures could be demonstrated grossly in cats after only four to five days of immobilization. As the fibrous contracture is produced, the ability to extend or stretch the muscle is reduced. Stretching of this contracture is equally as painful as overstretching normal muscle. Protective muscle spasm is initiated if the contracture is stretched, and the patient involuntarily splints the synergistic muscles to protect the painful one. This involuntary limitation of motion contributes to a progressively increasing contracture.

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1. Frohlich, A., and Meyer, H. H.: Untersuchungen über den Tetanus, Arch. f. exper. Path. u. Pharmakol. **79**: 55, 1915-1916.

METHOD OF TREATMENT

Treatment of low back pain has a twofold aim: to relieve the pain in the area of initial trauma and to relieve the muscle spasm and its concomitant effects. For the relief of muscle pain, heat is one of the best analgesics. All types of heat are useful to relieve deep pain or muscle spasm. Short wave diathermy is probably in general preference today because of its efficacy and ease of administration. However, it is my experience that woolen hot packs, heated in boiling water, centrifuged nearly dry and then quickly applied, are the most effective method of relieving muscle spasm.

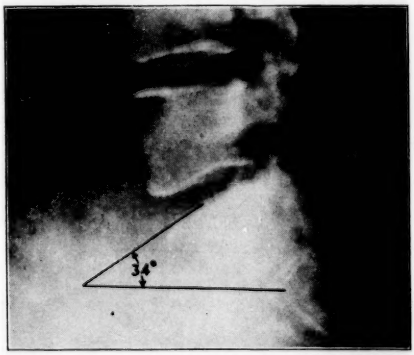

Fig. 1.—Normal back. The lumbosacral angle, the angle formed between the horizontal plane and the superior border of the sacrum, is 34 degrees (from Archer, V. W.: the Osseous System: A Handbook of Roentgen Diagnosis, Chicago, The Year Book Publishers, Inc., 1945).

These packs feel extremely hot since they are applied at a temperature of about 80 C., but because of their low water content there is too little heat to blister the skin. After the application of heat, massage is used to increase the threshold for pain and to obtain greater relaxation. Frequently, nodules may be palpated at the sites of tenderness, which disappear with massage. Whether these nodules are local areas of muscle spasm or connective tissue is difficult to determine, but as they are massaged away the tenderness diminishes. Massage is begun gently and increased in pressure gradually as the patient's tolerance increases. When massage is used in this manner, it is pleasant as well as beneficial.

Neither heat nor massage is able to stretch muscles out to their full resting length. Therefore, these forms of treatment are followed by passive or active stretching exercises to increase suppleness. Stretching exercises must be vigorous and must be designed to stretch the muscles which have been held in a shortened position. The muscles most frequently involved in backache are the erector spinae and the extensors, abductors

and flexors of the hips. However, any muscles may be involved in the individual case. Movement of these muscles through the range from full contraction to complete relaxation prevents the development of connective tissue which would tie the muscle fibers down with fibrous contractures and perhaps lead to a permanent deformity.

COMMON CAUSES OF BACKACHE

Among the conditions commonly causing backache is poor posture or relaxed posture with increased lordosis and kyphosis. Because of the more vertical position of the faces of the lower lumbar vertebrae (figs. 1 and 2), the shearing stress between vertebrae is increased and a greater share of support of the weight of the body is transferred to the muscles and ligaments uniting the vertebrae (fig. 3). This stress causes chronic pain low in the back associated with painful muscle spasm. As the muscles of the back fatigue, the lordosis, and with it the strain, becomes more pronounced. With the development of the relaxed posture the iliotibial band of fascia,

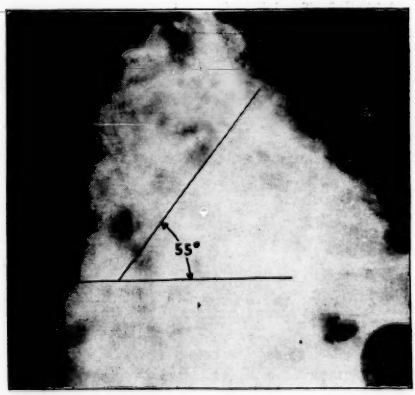

Fig. 2.—Lordosis. The lumbosacral angle is 55 degrees. The shearing stress on the muscles and ligaments has been increased by 46 per cent (from Archer, V. W.: The Osseous System: A Handbook of Roentgen Diagnosis, Chicago, The Year Book Publishers, Inc., 1945).

which runs from the lumbosacral fascia and the iliac crests down over the lateral side of the thigh to insert below the knee, is put in a relaxed position and gradually shortens. As the iliotibial band shortens, it creates a fibrous barrier to resumption of normal posture. By fixing the lumbar part of the spine in a lordotic position, the iliotibial band aggravates the strain further. Treatment of this condition is threefold: stretching of the iliotibial band and low part of the back to establish normal mobility, resistance exercises to increase the strength of the back muscles and training in correct habits of posture.

Acute lumbar strain or acute myofascitis usually is the result of lifting. Immobilization of an acute muscle strain allows development of fibrosis and prolongs the condition. As Bankart stated concisely, "Immobilization of acute back strain turns it into a chronic one. Immobilization of a chronic back strain perpetuates it indefinitely." [2] Therefore, treatment consists of heat and massage for analgesia and relaxation and stretching to mobilize the involved muscles as just described.

Occasionally, after a twisting motion, the patient may experience a sudden stabbing pain over the sacrum with spasm of the back muscles and inability to stand

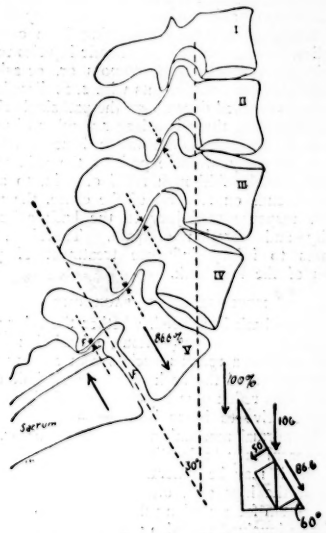

Fig. 3.—Diagram showing shearing forces acting on the muscles, ligaments and articular facets of the lumbosacral angle. When the lumbosacral angle is 30 degrees, the shearing force equals 50 per cent of the weight due to gravity. With a lumbosacral angle of 60 degrees, the shearing force is 86.6 per cent of the total weight (from Chandler, F. A.: Lesions of the Isthmus (Pars Interarticularis) of the Laminae of the Lower Lumbar Vertebrae and Their Relation to Spondylolisthesis, Surg., Gynec. & Obst. 53: 273, 1931).

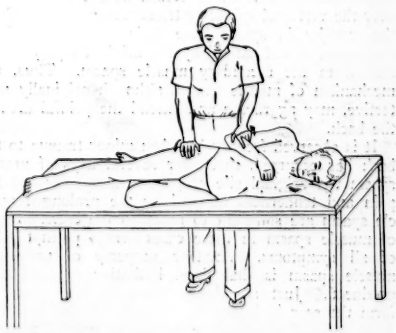

Fig. 4.—Manipulation of the sacroiliac joint for subluxation following a sacroiliac strain. The patient lies on the unaffected side with the lower knee flexed and the upper hip and knee extended. The elbow is flexed and the forearm laid across the chest. The operator rolls the hip forward and the arm and shoulder back several times, as indicated by the arrows, until the patient relaxes, and then gives a quick snap in the same direction. Great force is neither necessary nor desirable if relaxation is obtained. Occasionally, a "click" can be heard or felt in the manipulated joint.

erect. Tenderness is definitely localized over one or the other posterior superior iliac spines. This is an acute sacroiliac strain, probably due to a slight dis-

2. Bankart, A. S. B.: Low Back Pain and Sciatica, Practitioner 157: 367, 1946.

placement in the sacroiliac joint. Flexion of the hip with the knee straight, or hyperextension of the hip, causes motion and pain in the involved joint. Other motions of the hip are relatively painless. After analgesia and relaxation have been induced by heat and massage, often dramatic relief can be obtained by manipulation of the involved joint as shown in figure 4. This simple maneuver requires relaxation of the patient and then a sudden mild snap of the joint rather than the application of force. Stretching of the hip and back extensors mobilizes the muscles held in spasm to protect the sacroiliac joint.

All patients with backache should be advised concerning the type of bed to use. The modern bed with a soft innerspring mattress aggravates backaches. It is the observation of many patients with chronic backache that they can sleep better on the floor than in a soft bed. Patients with backache should be advised to sleep on a felt or hair mattress placed on bed boards without a spring. This provides the flatness and support needed to allow the muscles of the back to relax during sleep. Many patients find relief from a chronic backache merely by substituting a firm flat bed for the modern flexible bed.

PHYSICAL TREATMENT OF COMMON DISORDERS OF THE FEET

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Physical therapy should be used to accomplish a particular result. For this reason, when disorders of the feet are to be treated, a clear knowledge of the etiologic aspects of the condition is needed, and the plan of treatment should have a logical reason.

For many years there have been lists of exercises described with the general idea of strengthening the feet. In a vague sort of way, painful feet have been considered weak feet, and exercises have been prescribed to strengthen them. Needless to say, exercises can be done for only a small part of each day; yet the patient is probably forced to bear weight many hours of that day. The muscles of the feet cannot be weaker than muscles elsewhere in the body, so that there is no reason for planning strengthening exercises for the feet alone.

This paper is limited to a discussion of treatment of the common disorders of the feet. Superficially, one thinks the common disorders to be corns, calluses, bunions, traumatic arthritis, clawed toes or hammer toes, pronations and supinations. These represent the results of pressure of shoes on feet which are malalined to fit the shoes in which they have been placed, or of variations in muscular pull, due either to contractures or to spasm. The primary causes for most obvious distortions are:

I. A failure of full evolutionary development which is evidenced by variations of the first metatarsal segment or of a metatarsus varus

II. Muscular contractures of hamstrings, calf muscles or the plantar muscles and fascias which result in pes equinus or pes cavus

III. Hyperflexibility of ligaments which results in pes valgus

IV. Such congenital or developmental anomalies as pes equino varus, accessory scaphoid bones, calcaneonavicular coalitions and epiphysitis which can cause strain and variations from the normal alinement

V. Pathologic conditions which cause paralyses or arthritis and present themselves here as in other parts of the body

The diagnosis of the fundamental cause of the disorder must be made by careful clinical examination and by roentgen examination. No final program should be planned without making as complete a study as possible in order to be sure of the underlying cause.

CAUSATION, DIAGNOSIS AND TREATMENT

I. *Metatarsal Variations.*—The commonest cause of foot strain is variations from normal of the metatarsal bones because of failure of full evolutionary development. Variations in the first metatarsal segment are most often noted, since in the development of the human foot the first metatarsal came to lie beside the second to add support to the medial side of the foot. Morton [1] has defined certain anatomic variations which lead to definite strain: (1) a short first metatarsal, or (2) posteriorly placed sesamoids under the first metatarsal, and (3) hypermobility of the first metatarsal segment (including the first cuneiform, which moves with the metatarsal). This is recognized in metatarsus primus varus, where a wide angulation of 10 to 19 degrees exists between the first and second metatarsals. The strain is due to the failure of the first metatarsal to support the medial border of the foot, and excess weight is then transferred to the second and third metatarsal heads, while the sustentaculum tali becomes depressed. Where metatarsus primus varus is present, narrow or pointed shoes cause a hallux valgus.

A condition closely related to these is metatarsus varus,[2] or an inturning of the entire forefoot. This is easily recognized in babies' feet but is difficult to diagnose in adults without carefully taken roentgenograms. This type of foot is usually broad anteriorly, as is that with metatarsus primus varus, and as it is very flexible it will be fitted to a narrow shoe. As the inward deviation makes proper fitting of shoes difficult, many of the secondary disorders may be noted, such as clawing, pes cavus, or pes valgus, bunions, corns and calluses.

Treatment in the adult consists in fitting the foot with a wide shoe, frequently an E. It may be flexible enough to permit the forefoot to take its normal position, or it may be a supporting shoe with a straight inside last. No shoe is built to fit this foot. The width of the anterior part of the foot should be measured in the weight-bearing position, as the ease with which it can be compressed tends to result in fitting it with a shoe which is far too narrow. When the forefoot is properly fitted, the heel of the shoe now obtainable is far too wide; hence this has to be corrected. The heel must be low to prevent thrust on the metatarsal heads, particularly when the first is short or hypermobile. A pad of felt, rubber or leather, to lift the first metatarsal head when it is short or hypermobile, stabilizes it and takes the thrust from the second, thus stopping the formation of calluses. When metatarsus varus is present in the infant's feet, casts should be applied as early as is possible. If the condition is mild, there will be a tendency to straighten, and stretching of the

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Read in a panel discussion on Physical Medicine in General Practice in the Session on Physical Medicine, before the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

1. Morton, D. J.: Biomechanics of the Human Foot, Lecture on Reconstruction Surgery of the Extremities, New York, Columbia University Press, 1944, p. 92. The Human Foot, ibid., 1935. Foot Disorders in General Practice, J. A. M. A. **109**: 1112 (Oct. 2) 1937.

2. Baker, F.: Foot Strain: Etiology and Treatment, Arch. Phys. Med. **18**: 218 (April) 1947.

medial border of the foot in such a way as to carry the metatarsals lateralward at the tarsometatarsal joints with stretching of soft tissues may suffice, but usually casts followed by wedging at the medial border in line with the tarsometatarsal junction are indicated, to be followed by corrective shoes to the age of 5 or 6, or during the period of the development of the bones of the feet.

II. *Shortening of Soft Tissues.*—The second commonest cause for foot strain is that of shortening of soft tissues. Where contractures of soft tissues are present, the whole alinement of the body on the feet is shifted. The gastrocnemius soleus group shows its first evidence of shortening at about the age of 7 and usually results in an inversion of the foot due to the tilting of the os calcis.

Pes cavus is congenital routinely and is accompanied with a short heel cord. It causes clawing of the toes, with consequent strain and pressure. The diagnosis of these conditions is made easily by observation, though roentgen examination should always be made to rule out bony abnormalities.

III. *Hyperflexibility of Soft Tissues.*—The third condition, hyperflexibility of soft tissues, has to be treated by fixation to allow shortening. Later shoes must hold the foot in alinement to permit the best opportunity for muscular pulls.

IV. *Congenital Anomalies.*—Congenital anomalies as compared to the etiologic factors already mentioned are rare. When they are sufficient to cause strain, orthopedic measures are usually necessary.

V. *Paralysis and Rheumatoid Arthritis.*—Paralysis and rheumatoid arthritis are dependent on the same manner of treatment as elsewhere in the body.

Treatment.—It has been emphasized that attempts at correction of the causative factors leading to the common foot disorders and the careful choosing of shoes to permit the best alinement of the feet are of first importance in the treatment of the primary variations from normal. Exercises to develop muscular power have no place in treatment of foot strain. If the general bodily musculature has been weakened by any debilitating condition, then reconditioning exercises are of importance for the muscles of the feet as they are for all muscles of the body. The idea of the relief of strain by "foot exercises" is built on a false premise.

Physical Treatment: Physical treatment is absolutely necessary for the relief of acutely painful feet. Where there has been severe strain, the pain with its accompanying muscular guarding or spasm must be controlled before more permanent management of the underlying cause can be instituted. When physical treatment is given, the patient should be in the supine position for the purpose of obtaining general relaxation. Spasm and pain are most easily controlled with large hot packs wrung as dry as possible. Whirlpool, hot bath or contrast baths are helpful. Radiant heat or diathermy may so affect the ligaments or periosteum as to increase rather than decrease the pain. After thirty to forty minutes the wet heat should be followed with very light stroking (effleurage) massage. The massage can be gradually deepened, but it must not cause pain at any time. As the foot relaxes under this treatment, slow carefully controlled movement in all directions will help to indicate whether the spasm has been released. It may be necessary to strap the foot with adhesive tape or to bandage it with an ace® bandage. If absolute rest is necessary, it should be arranged. This program should be continued until the immediate pain is controlled. Then further studies can be made as indicated and a plan for control of the disorder can be made.

Physical treatment is required for the reduction of muscular contractures. When pes cavus is noted in the baby, casts should correct the shortening in both the heel cords and the plantar tissues. If no treatment is started until childhood, then a special program of stretching should be prescribed before surgical treatment is considered. Casts may be used to start the improvement. Traction apparatus should be used. A block placed against the metatarsal heads and held by a pulley can be forced to stretch both plantar fascias and muscles and the achilles tendon. The counter traction is fixed.

About 50 or 60 pounds of force can be used over a period of thirty minutes and is a good start to a program of active stretching exercises. The best exercise for this is one in which a so-called fall-out position is assumed from a standing position. One knee is flexed and the opposite leg is extended backward so that the metatarsal heads rest on the floor. The patient then attempts to press the heel to the floor. This stretches both the plantar and gastrocnemius soleus muscles.

In most instances no other treatment is required. If this program fails, then operation is necessary, as the bones take on new shape with the constant pull of soft tissues.

Physical treatment is necessary in the mobilization of joints that have become limited in range secondary to various etiologic factors. Traumatic arthritis is frequent at the first metatarsophalangeal joint where there is faulty weight bearing as described earlier under metatarsal variations. There may be clawing hammer toes. Contractures of soft tissue may result from rheumatoid arthritis or from various types of paralysis. If pain is present, radiant heat, wet heat or paraffin may be used for twenty to thirty minutes, followed by massage and stretching. The massage can be deep stroking, kneading or friction, but it must not be painful. Mobilization of joints is essential to stop pain and to permit a normal gait. There must be free anteroposterior motion at the tibioastragaloid joint. The subastragaloid is very important, as weight of the body is distributed through it to the os calcis. Limitation here makes walking on irregular surfaces difficult, since its motion is lateralward. Stretching is done by grasping the os calcis and moving it laterally on the astragalus, which is fixed by the operator's other hand. The ligaments between the tarsal bones should be stretched. Good play should be obtained at the tarsometatarsal junction by grasping the metatarsals, stretching longitudinally and moving them laterally, and in a rotary direction. Hallux rigidus can occur if free mobility is not obtained at the first metatarsophalangeal joint. The toe is grasped and moved lateralward on the fixed metatarsal; then, with traction applied, the toe is dorsiflexed. This movement is particularly important, as the phalanx is sharply dorsiflexed on the metatarsal in normal walking. If a good range of painless movement cannot be obtained because of the arthritic changes in the joint, then surgical arthroplasty or fixation may be necessary.

Semimobile joints are routinely painful. Joints must regain their normal range or they should be fixed either surgically or by external means to prevent the

strain that is constantly occurring in a joint that is only partially mobile.

Physical treatment is used to reeducate muscles to normal movement after deformities have been corrected. A short heel cord will throw a foot into pronation. When this has been relieved, shoes are fitted to hold the foot in correct position, but it is often necessary to stimulate the tibialis anticus and posticus actively to lift the medial side of the foot in walking. The peroneus tertius may also need retraining before the patient will dorsiflex his foot and reach correctly with the heel as is required in normal locomotion. Activity of the dorsiflexors of the toes must be controlled, as they are overactive when contractures have been present which prevent the normal dorsiflexion of the ankle by the tibialis anticus and peroneus tertius.

CONCLUSIONS

The proper treatment of the common disorders of the feet rests on a careful analysis of the etiologic factors. If the condition can be recognized in infancy, prevention or correction may be obtained. In the older child or adult, treatment depends on: (1) the choice of shoes to fit the patient's feet, (2) relief of severe pain, (3) obtaining complete range of motion of joints through elongation of any soft tissues that may be limited by whatever cause and (4) education to a correct gait.

PHYSICAL TREATMENT OF PERIPHERAL VASCULAR DISEASE

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St. Louis

In no other set of conditions is a proper balance between medical, surgical and physical methods of treatment more essential than in diseases of the peripheral circulatory systems. Rational therapy must be based first of all on a thorough understanding of their anatomy and physiology, both normal and morbid; secondly, on accurate methods of evaluation, and, finally, on a thorough knowledge of all methods of treatment and of judgment and discrimination in their application. One of the least satisfactory aspects is the status of tests and measurements. The most useful seem to be the simple clinical methods of inspection, palpation and auscultation. New and better ones are urgently needed.

An attempt is made in this presentation to emphasize the most widely held views of authorities in the field of vascular disease. Perhaps the best, although not very recent, review of the subject is that of Allen and Kvale.[1] Van Dellen and his co-workers should also be consulted.[2] Standard texts include the views of Abramson,[3] Homans,[4] Collens and Wilensky,[5] Allen, Barker and Hines[6] and Kramer.[7] One of the best works is by Wright.[8] Recent advances in physiology and in tests and measurements can be found in appropriate sections of the "Annual Review of Physiology"[9] and in a brief monograph by Richards.[10] A general bibliography of physical methods is available in the serial volumes of the "Yearbook of Physical Medicine."[11]

Angiologic conditions in which physical methods are inappropriate or play a minor role are omitted from the discussion.

DISEASES OF LYMPH VESSELS

Hot fomentations and elevation are standard treatment in lymphangitis and lymphadenitis of both the upper and lower extremities, whether incited by puncture wounds or by fungous infections. Luminous heat and hot tub baths may be used. Lymphedema, whether congenital (Milroy's disease) or secondary to trauma, tumor or infection, should be treated by elevation of the extremity, centripetal massage and tight bandaging. Neglect results in fibrosis (elephantiasis), which can be treated only surgically.

DISEASES OF VEINS

Stagnation of venous blood in the calves or perivesical plexus is at least one factor in the production of phlebothrombosis and phleboembolism. Once these grave conditions have developed, physical treatment is contraindicated. The simplest and most effective prophylaxis is properly carried out bed exercises. It is highly desirable that all persons treated with prolonged bed rest perform such exercises, especially in pelvic postoperative states and in cardiac decompensation. Dorsiflexion, toe fanning and curling, inversion, eversion and isometric plantar flexion against a footboard should be performed in ten to thirty repetitions, at least three times daily.

Once frank thrombophlebitis has developed the danger of embolism is regarded as past, although not necessarily in the opposite, apparently uninvolved, leg. In thrombophlebitis the leg should be elevated 15 cm. (6 in.) above the heart level. The foot of the bed may be placed on blocks. Rest is essential. Deep breathing, straining at stool and elaborate physical examination of the chest should be avoided as long as there is any hazard of embolism. Many types of heat may be used. Hot packs are probably best. Massage is contraindicated.

Thrombophlebitis migrans requires only symptomatic treatment. Care should be exercised in the use of heat on the acral parts, since this type of phlebitis is often symptomatic of underlying thromboangiitis obliterans.

In varicose elephantiasis and ulceration the underlying defect is tissue anoxia from chronically increased venous pressure. If surgical correction is not feasible, permanent external support in the form of elastic stockings or bandages is required. Localized increase of pressure over ulcers or split grafts may be achieved by binding on foam rubber sponges. Those with much experience favor pure gum rubber bandages 3 in. (8 cm.) wide and 15 feet (457 cm.) long. Acetyl-beta-methylcholine chloride (mecholyl chloride®) may be administered by ion transfer in the treatment of ulcers

From Washington University School of Medicine, St. Louis.

Read in a panel discussion on Physical Medicine in General Practice in the Session on Physical Medicine before the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

1. Allen, E. V., and Kvale, W. F.: Physical Medicine in Vascular Diseases, M. Clin. North America **27**: 951, 1943.
2. Van Dellen, T. R.; Scupham, G. W.; de Takats, G., and Fowler, E. F.: Vascular Diseases: Tenth Annual Review, Arch. Int. Med. **75**: 125 (Feb.) 1945.
3. Abramson, D. I.: Vascular Responses in the Extremities of Man in Health and Disease, Chicago, University of Chicago Press, 1944.
4. Homans, J.: Circulatory Diseases of the Extremities, New York, The Macmillan Company, 1939.
5. Collens, W. S., and Wilensky, N. D.: Peripheral Vascular Diseases, Springfield, Ill., Charles C Thomas, Publisher, 1939.
6. Allen, E. V., Barker, N. W., and Hines, E. A.: Peripheral Vascular Disease, Philadelphia, W. B. Saunders Company, 1946.
7. Kramer, D. W.: Peripheral Vascular Diseases, Philadelphia, F. A. Davis Company, 1948.
8. Wright, I. S.: Vascular Diseases in Clinical Practice, Chicago, The Year Book Publishers, Inc., 1948.
9. Luck, J. M.: Annual Review of Physiology, Stanford, Calif., Annual Reviews, Inc., 1947.
10. Richards, R. L.: The Peripheral Circulation in Health and Disease, Baltimore, Williams & Wilkins Company, 1946.
11. Kovacs, R.: The Yearbook of Physical Medicine, Chicago, The Year Book Publishers, Inc., 1947.

to produce hyperemia, stimulate granulations and speed epithelization. Intermittent venous occlusion has been used successfully.

DISEASES OF LARGER ARTERIES

Functional diseases of the larger arteries include cervical rib and scalenus syndrome, hyperabduction syndrome of Wright [12] and costoclavicular syndrome of Falconer and Weddell.[13] Many patients in this group can be successfully treated by postural exercises alone. Others will require surgical cure. Special arrangement of pillows at night, luminous heat, head traction and massage may be required. In Wright's syndrome it is necessary only to bind the wrists loosely to the foot of the bed at night. Those doing overhead painting or lubricating may need to shift to a different job. In costoclavicular syndrome (first noticed in soldiers wearing heavy packs) the upper trapezius and levator scapulae should be strengthened by appropriate therapeutic exercises.

Structural disorders of the larger arteries include rupture of syphilitic or arteriosclerotic aneurysms, medionecrotic dissections (resulting in weird trains of neurologic and vascular symptoms), Volkmann's ischemia (initially functional), thrombosis of intimal plaques, traumatic arteriovenous shunts and gross emboli (usually from thrombi in a fibrillating left auricular appendage or infarcted ventricular wall). Many of these conditions are brusquely fatal. Thrombosis of the aorta at its bifurcation and extensive dissecting aneurysms are not incompatible with survival, although the prognosis is necessarily limited. Development of collateral channels, either via the vasa vasorum or in small external laterals, and control of local arterial spasm are crucial points in treatment.

Spasm must be treated by reactive hyperemia, either caloric (from warming unaffected extremities) or venous (intermittent occlusion), combined with ganglionic blocking agents and perhaps intra-arterial drugs. The greatest care must be exercised to maintain the occluded extremity at a temperature favorable to circulation through collaterals and yet not so high that the metabolic rate outruns the oxygen supply or that local burns occur because of poor heat dissipation in the tissues.

Advancing gangrene, including gas gangrene, may be halted in a desperate crisis by packing the unsalvageable extremity in ice while an elderly or debilitated patient can be suitably prepared by antibiotics, transfusions, insulin and the like for an amputation at leisure. Most surgeons are opposed to the use of local cold anesthesia for the amputation. If vascular disease is present in the other limbs, refrigeration should not be used, since it causes diffuse reflex vasoconstriction.

DISEASES OF SMALL ARTERIES AND ARTERIOLES

Functional diseases and syndromes of obscure causation include Raynaud's symptoms and Raynaud's disease, acrocyanosis, livedo reticularis, reflex dystrophies and atrophies, erythromelalgia (or erythermalgia) and possibly causalgia. Raynaud's symptoms are usually so mild as to require no special treatment. In Raynaud's disease the main point is avoidance of cold. Special heaters may be used for gloved hands and feet only for the prevention of attacks; the patient must be warned of the danger of burns in the use of such devices during attacks. Acetyl-beta-methylcholine chloride iontophoresis has proved useful in management, especially when there is ulceration. Sympathectomy does not cure. Traumatic vasospastic disease (miner's hand, pneumatic hammer disease) may require a change of occupation. Acrocyanosis and livedo reticularis are usually mild disorders requiring no special treatment. Exceptionally, late arteriolar proliferative changes occur similar to those seen in Raynaud's disease and pernio. Treatment of reflex or Sudeck's atrophy (secondary to trauma) is unsatisfactory. Shoulder-hand syndrome may belong to this group. Vigorous hydrotherapy, massage and therapeutic exercise should be administered for an extended period. Results are only fair. Erythromelalgia, the semiologic opposite of Raynaud's disease, requires the opposite prophylaxis—avoidance of heat. Acrodynia has some similarities.

Raynaud phenomena may occur in leukemia, rheumatoid arthritis and the "group" or diffuse collagen diseases: lupus erythematosus disseminatus, scleroderma, dermatomyositis and periarteritis nodosa. The last named, when the cause of neuritic or joint pain, may be treated by whirlpool baths. Heat should be used with caution when the cutaneous sensory nerves are affected. Insolation and ultraviolet rays should never be used in lupus erythematosus because of the danger of provoking fatal dissemination. In scleroderma localized to the hands and forearms, paraffin baths followed by vigorous massage and acetyl-beta-methylcholine chloride iontophoresis may be tried (0.1 to 1.0 per cent solution; 15 milliamperes for thirty minutes). In the generalized form of the disease no treatment is of avail. It may affect the face, mouth, esophagus and even the heart.

Structural diseases of the small arteries include most of the important groups of arterial insufficiency seen clinically. The classification by size is somewhat artificial in the case of thromboangiitis obliterans and arteriosclerosis, veins being likewise affected in the former instance and large as well as small vessels in both. Nevertheless it is insufficiency of the small vessels that eventually leads to claudication, muscle infarction and gangrene. It is here that physical agents have their greatest utility in treatment.

Included in this group are congenital and acquired neurovascular gangrene (spina bifida and medullary dysraphism, mal perforans, leprous amputations and Morvan's disease). Some of these conditions are mentioned because it is recognized that sensory denervation will not alone lead to progressive spontaneous amputations and gangrene.

Whatever the pathologic condition, the objectives in the treatment of small artery insufficiency are similar. As a preliminary step, especially in thromboangiitis obliterans, the physician should refuse to continue treatment of any patient unable finally and completely to stop smoking. Denicotinized cigarettes cannot be permitted. First steps are directed at emergency treatment for gangrene or threatened gangrene; second, the control of pain, and third, the stimulation of collateral circulation. Included in all of these are measures to interrupt all vasoconstrictor tone in the extremity.

Meticulous cleanliness and the avoidance of thermal, chemical and mechanical trauma are the first requirement. Care in the trimming of toe nails and corns and in the prevention of fungous dermatoses goes without saying. The extremity is lowered 15 cm. below the heart level. A cradle with protected carbon bulbs providing an ambient temperature of 31 to 35 C. (88 to 95 F.) will produce the right amount of vasodilatation

12. Wright, I. S.: The Neurovascular Syndrome Produced by Hyperabduction of the Arms, Am. Heart J. **29**: 1, 1945.
13. Falconer, M. A., and Weddell, G.: Costoclavicular Compression of the Subclavian Artery and Vein, Lancet **2**: 539, 1943.

without dangerously raising the tissue temperature. Patented thermostatic devices are safe and effective. Even more complete relaxation of the arteriolar walls can be procured by indirect heating of one or more normal extremities. Diathermy, luminous heat, paraffin and water baths and electrically heated sleeves have been employed. In diffuse peripheral vascular disease the diathermy application may be safely made over the pelvic area. Such treatment can be used only a limited number of hours per day, because it is somewhat exhausting. Whirlpool baths may be used. Contrast baths are physiologically unsound.

Despite their somewhat shaky physiologic background, the Buerger-Allen exercises have one excellent theoretical basis: They may aid in the establishment of collaterals by tissue demands short of claudication. An analogy can be drawn with the heart. Blumgart and Schlesinger have beautifully demonstrated how anastomoses may form between various supposed end arteries, provided that occlusion takes place slowly enough. Without the stimulus of continuous activity of the heart muscle, it is doubtful that these would form. Similarly, leg muscles which are allowed to lie completely flaccid are possibly just as undesirably treated as those overused.

The patient is provided with a printed instruction sheet with diagrams of the various positions and with a time schedule individually determined for him by noting how long it takes for pallor to develop on elevation and rubor on dependency. During dependency exercises similar to those described under prophylaxis of thromboembolism are carried out. The exercises should be carried out for one hour, three times daily.

Passive exercises include suction-boot apparatus, intermittent venous occlusion and the Sanders oscillating bed. Of these, strangely enough, the one with the best background of physiologic experimentation (Herrmann, Landis and Hitzrot) has fallen into the greatest disuse. The objections to the alternating suction and pressure boot are largely practical: its effect is too transient, it is bulky and it is irritating to the skin. The intermittent venous occlusion apparatus (Collens and Wilensky), on the other hand, is small and portable, not greatly expensive, not irritating to the user and can be operated for prolonged periods of time without attention and without danger. The senile, petulant or confused patient may not tolerate it, however, any better than he does his in-lying catheter. Convincing physiologic experimentation on the effect of this apparatus is still lacking, although some apparently well carried out clinical studies have been made by its sponsors which sound convincing. Some writers feel that in order to be effective it must be used in the patient's home daily (one or two hours) for six months or more and that its predominant effect is the establishment of collaterals.

The oscillating bed is expensive. It can be used to some extent with uncooperative patients. Those experienced in its use are enthusiastic.

DISEASES OF THE SMALLEST BLOOD VESSELS

The intoxications, some affecting also the arterioles, include ergotism in its various forms, procaine-epinephrine gangrene, nicotine, certain bacterial and virus toxins, dicumarol® and a wide variety of chemicals. Some of these, such as the phenol group, depend on concentration. Others depend on idiosyncrasy. In those causing vasospasm treatment discussed previously is applicable.

Certain blood dyscrasias result in capillary embolism or thrombosis. Erythremia and sickle cell anemia are examples. Cutaneous ulcerations may be produced, especially about the shins. Similar in appearance are the ischemic ulcers sometimes seen in hypertension. After attempt at correction of the basic disturbance, treatment is symptomatic and expectant. For ulcers hydrotherapy and ion transfer of either histamine or acetyl-beta-methylcholine chloride are useful. Decubiti are ischemic ulcers produced by compression of a thin tissue between a mattress or cast and a bony prominence. Ion transfer and whirlpool treatment are also important here.

The vast group of the purpuras is not considered, since the symptom itself seldom requires treatment. Joint involvement may require heat, special supports and mild exercises. Air thrombi (bends) form in too rapid decompression of deep sea divers, caisson workers and aviators. The treatment is rapid recompression in a special chamber and then slow decompression.

Histamine reactions result in certain persons from physical agents such as mechanical trauma, cold and (rarely) heat. Sunlight may also provoke them (urticaria solaris). The only prophylaxis consists in the avoidance of the harmful temperatures. In cold urticaria, desensitization by means of daily baths, each 1 degree colder than the previous, may be attempted.

Acute and chronic pernio (chilblains) are poorly understood disorders associated with exposure to cold. I observed several instances in the winter of 1944 among Italian civilians living in unheated houses. Treatment of the ulcerated chronic type is highly unsatisfactory. Measures discussed under blood dyscrasias may be tried.

Some authorities have expressed the belief that the pathologicophysiologic aspects of frostbite and of trench or immersion foot are identical and others that they are dissimilar.[14] Until this debate is settled, the treatment of these conditions remains somewhat tentative. It is agreed, however, that in no instance should the involved part (in the acute stage) be either too rapidly warmed or kept too cold. The traditional rubbing with snow is bad on two counts: first, the use of snow or ice may extend the thermal damage already begun; second, even the lightest massage may cause breakdown and ulceration, admitting infectious agents to tissues with a severly lowered immunologic barrier. Warming the part by contact with another person is acceptable, but the use of additional heat is not to be considered. The extremity should be brought gradually to room temperature (20 to 22 C.). Walking must be avoided in the early stages. Slight elevation is desirable to reduce any edema (particularly frequent in immersion foot). No constricting clothing of any sort may be permitted about the extremity. Appropriate drug therapy will, of course, be carried out concurrently. Gangrene should be treated with extreme conservatism, allowing demarcation to occur where it will. Many apparently hopeless situations will thereby be saved. Severe paresthesias, pain and paralysis of the intrinsic musculature attest to the degree of nerve involvement. In immersion syndrome extreme hyperemia and bounding pulses are common. Elevated skin temperatures and burning pain may require cooling by an electric fan or rarely even by brief packing in insulated ice containers. This phase is succeeded by atrophy, reduced blood flow and lowered skin temperature and is treated oppositely. Stimulation by ion transfer,

14. Lange, K.; Weiner, D., and Boyd, L. J.: The Functional Pathology of Experimental Immersion Foot, Am. Heart J. **35**: 238, 1948.

reflex hyperemia, alcohol ingestion and typhoid vaccine is now appropriate.

In the chronic stage invalidism can be needlessly prolonged by neglecting early bicycling and walking instruction. Dogged insistence on these points and on exercises for the intrinsic foot muscles will prevent the severely disabling degrees of bone atrophy and ligamentous relaxation which result from inactivity. Paresthesias are stubborn. They can be helped by hydrotherapy and massage. For the hands, suitable shop and occupational therapy should be prescribed for recovery of joint motion (especially of the phalanges), work tolerance and skill. For the feet bicycle jig saws, treadle looms and other appropriate apparatus may be used. After loss of a limb or a part, training in a new vocation may be necessary. Throughout this discussion it is assumed that patients hospitalized for weeks or months, and therefore consumed with boredom, should be provided with diversional and morale occupational therapy.

Tumors of the minute blood vessels which may be treated with physical agents include spider nevi and hereditary hemorrhagic telangiectasia (electrodesiccation) and hemangiomas of the newborn (solid carbon dioxide). In the latter one should wait for spontaneous involution, which often occurs, before intervening. Pigmented nevi, especially if enlarging, should never be treated by other than wide surgical excision.

CONCLUSION

It should be emphasized that in the physical treatment of vascular disease good judgment is more important than elaborate equipment. Ingenious improvisations, of which one saw so much during the late war, often serve well. One must avoid placing too much responsibility on the therapist, who, unless provided with a complete, thoughtful and detailed prescription, tends to fall into a routine rut. If the physician is vague about the objective of his treatment and imprecise in ordering its details, he can scarcely hope that the therapist will be any less vague in its execution. If he fails to observe that the patient has loss of pain and temperature perception, he should not blame the therapist for producing a diathermy burn. On the other hand, he cannot personally check every phase of the treatment. His only protection is to insist that the therapist be registered and a graduate of an accredited school.

ABSTRACT OF DISCUSSION

ON PAPERS BY DR. FRANCES BAKER, DR. FREDERIC J. KOTTKE, DR. ROBERT L. BENNETT AND DR. SEDGWICK MEAD

QUESTION: What physical treatment can best be used at home in treatment for painful weak feet?

DR. FRANCES BAKER, San Francisco: One would want to know why the foot is painful or why it is weak. If a foot is weak it must have been held in a fixed position for a long time by some type of rigid support, or it must have ligaments that are too long. For treatment at home hot packs can be used to relieve the pain. Ice water may give more relief and will help to make the skin firm. It is important that the patient wear the shoes which have been prescribed. The patient must rest certain periods of each day. It may be necessary to refrain from weight bearing for a few days, until the acute pain subsides. Exercises are given to strengthen weak muscles and to train for the corrected position of the foot. Stretching may be necessary.

QUESTION: What percentage of patients with flatfoot are asymptomatic?

DR. BAKER: That is a difficult question for me to answer. I have tried through various school examinations and so forth to see how many patients with flatfoot are asymptomatic. There are differen types of flatfoot. The rigid flatfoot is symptomatic and difficult to treat with any plan. Rigid flatfoot has only about 1 per cent frequency. The flexible foot is one in which the ligaments are long. It is of low incidence also. The frequent causes for flatfoot are shortened heel cord, metatarsus varus or shortened first metatarsal. The foot is always strong, if the shoe is fitted to the foot. The pronation does not cause pain unless the shoe has caused malalinement.

QUESTION: Is the shortening of the achilles tendon the commonest cause of pronation of the feet?

DR. BAKER: I think that it is certainly a very common cause. The shortened achilles tendon can be observed after the age of 6. It is not primarily due to the wearing of high-heeled shoes. It is most commonly seen in children, beginning at about the seventh year, and from then on it will cause definite pronation. Stretching of gastrocnemius-soleus muscle and retraining of the tibialis muscle will correct it.

QUESTION: What is the most satisfactory method for stretching calf muscles and achilles tendons?

DR. BAKER: A relatively mild contracture can be cared for by the fall-out position which I described. The patient places his hands on the wall and falls forward toward the wall, flexing the elbows while keeping the heels on the floor. For heavy stretching, when one wants to exert extra force, one may apply traction and countertraction. With pulleys, traction of 40 to 60 pounds can be continued for thirty to forty minutes. This is an excellent method for treating a patient in a department of physical medicine. Rarely do casts have to be used.

QUESTION: What types of supports do you recommend for pronated feet?

DR. BAKER: After exercises and shoes have been prescribed, one can use felt or rubber to lift the long arch and support the shortened first metatarsal and lift the second metatarsal head. A Thomas heel with a medial lift of 1/8 to 1/4 inch (0.32 to 0.64 cm.) can be prescribed.

QUESTION: Does the use of rigid arch supports for prolonged periods weaken the muscles of the feet, so that muscle strengthening exercises are necessary?

DR. BAKER: If the foot can be placed in a shoe which is correctly alined, then the muscles frequently regain their power without specific strengthening exercises. If the support has been applied because of pronounced hypermobility, it is difficult to reduce this even with heavy resistance exercises, but these should be prescribed.

QUESTION: How effective is the use of metatarsal bars in relieving metatarsalgia?

DR. BAKER: Metatarsal bars can be very satisfactory. One should define metatarsalgia. I suppose that pain in the region of the metatarsal heads with calluses under them is meant. If so, then the condition is treated as previously indicated. If the cause of the pain is found, one can correct the foot. There is metatarsalgia known as Morton's toe. Morton's toe is due to the formation of a neuroma on the branch of the sensory nerve between the third and fourth toes. Surgical treatment is necessary.

QUESTION: What physical treatment should be used in conjunction with metatarsalgia?

DR. BAKER: If the foot is painful, then it is necessary to relieve the pain and regain flexibility. It may be necessary to use heat, massage and rest to relieve the spasm before flexibility can be obtained.

QUESTION: What is the responsibility of the physiatrist in the treatment of corns, warts and calluses as causes of foot pain?

DR. BAKER: Of course, again, except for warts, these are not the cause of foot pain. They are the result. A wart should be referred to a dermatologist. It is not the business of physiatrists to treat warts. There are various types of warts, and there are too many mistakes made with regard to

warts. Corns and calluses will gradually disappear if the feet are treated as previously described. If the physiatrist can be properly interested in the problem of foot pain, then he is in a particularly happy position to care for the abnormalities.

QUESTION: What can be done to relieve the pain and disability due to hypertrophic arthritis of the spine?

DR. FREDERIC KOTTKE, Minneapolis: Heat gives temporary relief from pain in osteoarthritis of the spine. Most of the patients are stiff from prolonged immobilization because of pain. Moderate stretching exercises help these patients to become more limber and at the same time reduces pain. Unfortunately, these patients require prolonged treatment and the results are palliative. Heat, massage and moderate activity will give relief.

QUESTION: Is low back pain usually due to herniated disks?

DR. KOTTKE: Low back pain has been estimated to be due to degenerated or herniated intervertebral disks in 2 per cent to 100 per cent of cases, depending on who has formed the estimate. There are two types of disk lesions. One is the classic prolapsed disk with compression of a nerve root, pain in the back radiating down the leg, sciatic tenderness and atrophy and weakness of the muscles. This may be seen in any degree of severity. The other is degeneration of the intervertebral disk without herniation and compression of a nerve root. In this lesion the pain and tenderness are localized to the back, in the immediate vicinity of the disk. There may be no roentgenographic evidence of disk injury, or the intervertebral space may appear narrowed. There is no radiation of pain into the leg. In the absence of objective observations a diagnosis of a degenerated disk is presumptive and remains to be proved. Chronic backaches which are placed in this category frequently respond to treatment that would not logically be prescribed for a degenerated disk. Therefore, further proof is needed that this type of backache is due to a degenerated disk. I think, as a conservative estimate, that 10 to 20 per cent of low back pain may be related to herniation or degeneration of the intervertebral disks.

QUESTION: Is there any value in applying plaster casts or adhesives to the back in acute lumbar strain?

DR. KOTTKE: When a patient has such acute back pain that he will not tolerate any activity, heat and gentle massage may be used. If the pain is exquisite, and he will not allow manipulation of any sort, immobilization by strapping for a few days allows the acute pain to subside. The patient will allow one then to begin mobilizing activity. Such cases respond well to strapping. There is a larger number of cases in which it is not necessary for one to wait before beginning mobilization after heat analgesia. One may begin immediately with mild activity and in that way gain a few days in the treatment of the patient.

QUESTION: What is the relationship of the fibrositic nodule to the cause of back pain?

DR. KOTTKE: In some cases of low back pain one can find nodules that would be classified as fibrositic nodules. In some of these cases, there is no question that this so-called fibrositic nodule is actually a herniation of fat tissue through the lumbodorsal fascia. Copeman has shown in a careful study that these tender fibrositic nodules frequently are located where fat is distributed beneath the lumbodorsal fascia and in some cases it has been possible to find fat nodules herniated through the fascia and remove them surgically. Relief has been obtained by the excision of the fat nodule in these cases. Sometimes one obtains relief by injecting procaine hydrochloride into the areas of the nodule. In a certain proportion of cases, fibrotic nodules undoubtedly cause low back pain.

QUESTION: How many weeks or months should physical therapy be continued in poliomyelitis?

DR. ROBERT BENNETT, Warm Springs, Ga.: To answer that completely, one would have to write a book. It depends on the amount of involvement and the age of the patient. Anyone who has treated poliomyelitis extensively realizes that there is a great difference between the treatment of the adult patient and the treatment of the child. In the child, there must be some type of physical therapy for ten or fifteen years. One might best say that within six months the anatomic pattern of neuromuscular units is left; by the end of six months the inflammation in the nervous system has quieted down and there are available certain anatomic units. However, it might go on for years. I think that it is foolish to say that one should continue physical therapy for six months or eighteen months or any number of years. It depends on the patient. Many patients who have practically normal recovery of muscle function have residual tightness in the band and back or in the heel, which, if not stretched routinely, continuously for years, particularly in children until full growth has been established, causes trouble. With respect to how long muscle reeducation should go on, here again the child differs from the adult. In the adult, I would say moderate and specific muscle reeducation should be continued from fourteen to eighteen months. In the child who is learning habit patterns, muscle gait training should go on for years.

QUESTION: Should hot packs be used routinely in all cases of early poliomyelitis?

DR. BENNETT: Nothing should be used routinely in poliomyelitis. Hot packs have a definite purpose. They are part of a treatment to help relieve pain and release tightness.

QUESTION: How long should hot packs be used?

DR. BENNETT: Hot packs should be used until their usefulness in relieving pain and releasing tightness as part of the treatment is gone. If hot packs are needed to help relieve pain and release tightness, one should use them. There are other aspects of treatment that are controversial, for example, the use of curare as an adjunct in relation to muscle stretching. There is little doubt that the intelligent use of curare is indicated in some cases. I have used little of it because I have not found it necessary. By means of a number of other instruments and agents, I can achieve the same result in releasing spasm and tightness and reestablishing mobility. In certain selected cases and in skilled hands, curare can be an aid.

QUESTION: Can one diagnose acute poliomyelitis by electromyographic observations?

DR. BENNETT: I do not believe in the present status of knowledge that one can diagnose any disease entirely by electromyographic observations.

QUESTION: Is there any clinical and physiologic improvement following intermittent occlusion? What is the value of intermittent application of positive or negative pressure or both in the management of so-called varicose ulcers?

DR. SEDGWICK MEAD, St. Louis: The primary defect in varicose ulcers is increased venous pressure. If that cannot be cured by surgical means, then some type of method of increasing the tissue pressure above the venous pressure must be resorted to. It is difficult to see how intermittent venous occlusion could accomplish that except in a transitory way. Nevertheless, there are some clinical reports of rather remarkable healing of varicose ulcers with the use of intermittent venous occlusion. With respect to anticoagulants, their use in a patient who one suspects has a thrombus floating in the venous stream which may be ready to break off at any moment, it is agreed by all that anticoagulants will not dissolve the thrombus. Any type of active exercises used after the introduction of anticoagulant therapy must be begun with definite reservations about time. No one is agreed yet just how long it is safe to wait before such active exercises are begun. In general it is thought that when active symptoms are present, such as swelling and pain, sufficient organization of the thrombus to the vein wall has occurred so that embolism is no longer probable. There is a question here about peripheral vascular disease in diabetes. In general, what was said about arterial disease is applicable here, and, of course, it depends on how severe the disease is. There are two additional complicating factors in diabetes. Often a type of neuritic pain, which is poorly understood, may result from neuropathy in the spinal cord rather than in the peripheral nerves. The patient may have, in addition to that, loss of vibratory and position sense and perhaps a peripheral distribution of loss of

sense of pain and temperature, which may complicate his treatment considerably. It may lead to burns if great care is not exercised.

QUESTION: Why are "contrast baths" physiologically unsound in peripheral vascular disease?

DR. MEAD: I know of no good physiologic work on that point. Nevertheless, the consensus seems to be that following contrast baths the skin temperature is lowered. It is assumed, therefore, that there is a concurrent vascular constriction. Authorities are nearly unanimous in their condemnation of contrast baths in the treatment of occlusive arterial disease.

SELECTION OF THERAPY FOR INDIVIDUAL PATIENTS WITH THYROTOXICOSIS

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Seattle

The obscurity of the causation of thyrotoxicosis and the lack of completely satisfactory results with any type of therapy that has been prescribed for it have promoted continuous investigations, involving many different approaches. Some of the many types of treatment that have been, or are being, investigated are listed in table 1. The rationale of these therapies is based on the hypothesis that the central nervous system plays an important role in regulating the production and release of thyrotropin, which, in turn, governs the production of thyroid hormone; since too much of the latter causes thyrotoxicosis, anything, no matter where its action is centered, which tends to decrease the production of the thyroid hormone or antagonize its action will cause a remissioin in thyrotoxicosis.

During approximately the last five years I have investigated various of these types of therapy in 441 patients with thyrotoxicosis. Some of the specific compounds tested are listed in table 2. I also have observed the validity of using some of these compounds in conjunction with iodine, thyroidectomy and radioiodine. However, in this paper I am comparing chiefly the results obtained in the treatment of thyrotoxicosis (*a*) by means of subtotal thyroidectomy, (*b*) with prolonged administration of thiouracil[1] and (*c*) with radioiodine. In comparing these forms of therapy, I am utilizing chiefly my own experience, since an opportunity was afforded for studying, firsthand, a cross section of patients of the same general type under similar environment. Moreover, advantage was taken of the opportunity of comparing several types of therapy in the same subject. Finally, earnest efforts were made to follow the progress of the patients, not only during, but after the completion of, the treatment. Advantage in this respect was afforded by the fact that most of the patients lived in or close to Boston and could readily be given appointments for repeated examinations. The least cooperative ones were usually induced to return for examination following visits to their homes by social service workers or by me. However, 26 of the 441 patients disappeared from prolonged observation. The total number of patients who received the three major types of therapy are listed in table 3.

In addition to these major groups, there is a miscellaneous group of patients. They do not represent subjects that have fallen out of the three main classes; such patients are discussed under their respective headings. Instead, this miscellaneous group consists chiefly either of patients who have recently begun treatment or of those who served for clinical bioassay purposes.[2]

RESULTS OF THERAPY

Subtotal Thyroidectomy.—The preoperative and postoperative care given in this clinic and the courses of the patients during these intervals have been described previously,[3] along with some of the follow-up results. It is important to emphasize that most of the thyroidectomies were performed in three different hospitals and by four different surgeons whose main surgical specialty was in the thyroid field. The results obtained in 195 patients, almost all of whom were subjected to thyroidectomy previous to two years ago, are shown in table 4. The 2 deaths were previously described[4]; each occurred within twenty-four hours after thyroidectomy. One death was due to pulmonary embolism (?) and the other to hyperthyroidism.

TABLE 1.—*Types of Therapy in Use for Thyrotoxicosis*

General Basis for Therapy	Specific Therapy
A. Decreased neurogenic stimulation of thyrotropin production	A. Psychotherapy
B. Decreased capacity for thyrotropin production	B. Irradiation of pituitary
C. Inactivation of thyrotropin	C. Iodine
D. Decreased capacity for thyroxin production	D.
1. Decreased thyroid size	1. Thyroidectomy Irradiation { Roentgen / Radioiodine
2. Biochemical antagonism	2. Thiourea derivatives Aminobenzenes Thiocyanates
E. Antagonism of thyroxin	E. Thyroxin homologues Paraxanthine

Prolonged Treatment with Thiouracils.—A total of 119 patients[5] were treated for relatively long intervals with thiouracils. Propylthiouracil alone was used for 8 patients and thiouracil was used, alone or with propylthiouracil, in the others. The characteristics of most of the conditions treated, the program of therapy and the early results have been described previously.[6] The same general plan of therapy was used with propylthiouracil as with thiouracil. It was the policy to treat most of the patients for ten to twelve months before discontinuing therapy. A few patients were treated continuously for as long as eighteen months. Thirty-five patients were treated for a total of more than one year and 13 for more than two years.

The patients treated for prolonged intervals do not represent a selected group except so far as 10 patients were eliminated because of the large size of the thyroid gland and a few were eliminated because of the toxic reactions to the compounds. The experiences of my associates and me with toxic reactions to thiouracil

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1. Throughout this paper the word "thiouracil," unless otherwise clarified, is used to include not only thiouracil but also its derivatives. However, in most instances when it is used in this general way, it refers to thiouracil itself and/or propylthiouracil.

2. Williams, R. H.: Antithyroid Drugs: III. Comparison of Results of Newer Forms of Treatment of Thyrotoxicosis, Arch. Int. Med. **80**: 11-36 (July) 1947.

3. Williams, R. H., and Clute, H. M.: Thiouracil in the Treatment of Thyrotoxicosis, J. A. M. A. **128**: 65-69 (May 12) 1945.

4. Williams,[3] Williams and Clute.[3]

5. Four patients covered in a previous report (Evaluation of Newer Methods of Treatment of Thyrotoxicosis, *West. J. Surg.* **56**: 72-76 [Feb.] 1948) are not included here because they were used for the bioassay of several thiouracils and received insufficient dosage.

6. Williams, R. H.: Thiouracil Treatment of Thyrotoxicosis. I. The Results of Prolonged Treatment, J. Clin. Endrocrinol. **6**: 1-22 (Jan.) 1946.

have been reported previously.[7] In using propylthiouracil for intervals of a few weeks in 205 patients, we encountered significant toxic reactions in only 2 subjects, fever in one and fever with leukopenia in the other.

Of the 119 patients, 57 had a remission which has been sustained after cessation of treatment for a relatively long period, as indicated in table 5. These patients are all well now. Five of the 57 persons were men; 4 of the 57 had nodular goiters. Factors which tended to favor remissions were female sex, small goiter, mild thyrotoxicosis and age above 30 years.

Patients treated for intervals of from eight to fifteen months were more prone to have sustained remissions than were those treated for only a few months. A few patients who had a relapse when treatment was stopped experienced a sustained remission after another ten month course of therapy was given. That some patients tend to be refractory to this type of therapy, even after

TABLE 2.—*Specific Compounds Used in Treatment of Thyrotoxicosis*

Thioureas	**Thiopyrimidines**
Thiourea	Thiouracils
Diethylthiourea	Thiouracil
Tetramethylthiourea	6-methylthiouracil
Orthophenylene thiourea	6-propylthiouracil
Miscellaneous	6-cyclopropylthiouracil
Diethyl thiobarbituric acid	6-butylthiouracil
"Thiobarbital"	6-isobutylthiouracil
Aminothiazole	Thiothymine
p-aminobenzoic acid	Thiocytosine
Iodinated Compounds	**Thyroxin Antagonists**
5-iodothiouracil	Paraxanthine
5-iodo-6-methylthiouracil	
3, 5-diiodo-*p*-aminobenzoic acid	
Ethyl di-iodobrassidate	

TABLE 3.—*Patients Treated for Thyrotoxicosis with the Three Major Types of Therapy*

Type of Treatment	No. of Patients
Thiourea compounds or aminobenzenes	441
Thiouracils for prolonged intervals	119
Radioiodine	106
Thiourea compounds and thyroidectomy	195

long intervals, is indicated by the fact that of 13 persons treated for more than two years only 1 had a sustained remission after cessation of therapy. The longer the subjects have remained in a state of euthyroidism without therapy the greater are their chances of remaining in this condition. Although 5 patients had a reappearance of thyrotoxicity after remaining free of it for as long as one year,[8] none has had a relapse after remaining well for more than two years without treatment.

Of the 57 patients who have remained in remission, there are only 5 in whom at present the thyroid gland is not smaller than it was at the beginning of the thiouracil treatment. The maximal increase in size of the gland in the 5 patients was 10 Gm. (table 6). In 6 patients the decrease in size of the gland was aided by roentgen therapy. However, even without this treatment in several persons, glands which were estimated to weigh from 40 to 60 Gm. decreased to about 20 Gm.[9]

Most of the 62 patients who did not experience sustained remissions were treated effectively by other measures, as indicated in table 7. There was less tendency for a decrease in the size of the thyroid gland

TABLE 4.—*Results of Subtotal Thyroidectomy in 195 Patients* *

Persistent or recurrent thyrotoxicity	15
Myxedema	4
Hypoparathyroidism	2
Paralysis of vocal cords	2
Death	2

* Each patient had thiouracil alone or with iodide before operation.

TABLE 5.—*Interval of Remission of 57 of 119 Patients Treated with Thiouracil*

Years	No. of Patients
1.5	6
2.0	11
2.5	6
3.0	6
3.5	18
4.0	7
4.5	3

in the 62 patients who did not experience a sustained remission to prolonged treatment than in the ones who did. Indeed, in a few patients experiencing relapse the gland became much larger. There has been nothing to suggest malignant growth in either group.

Whereas I used thiouracil in most cases, I anticipate similar results with allied compounds when the latter are given in doses equivalent in antithyroid effect.

TABLE 6.—*Changes in Thyroid Size in 57 Patients in Remission Following Cessation of Thiouracil Treatment*

	Estimated Weight of Thyroid, Gm.	
No. of Patients	Pretreatment	Present
44	25 to 45	20 (normal)
9	45 to 65	25 to 35
1	60	60
1	60	50
1	130	80
1	550	60

TABLE 7.—*Outcome of 62 Cases Without Sustained Remissions*

Remission after radioiodine	28
Remission after thyroidectomy	22
Disappeared from observation	9
Receiving treatment now	3

Radioiodine.—Radioiodine was used in this clinic in the treatment of 106 patients with thyrotoxicosis. Six were treated only in the last three months and the results cannot be evaluated at present. Of the remaining 100, 21 had had a subtotal thyroidectomy and 40

7. Williams, R. H.; Clute, H. M.; Anglem, T. J., and Kenney, F. R.: Thiouracil Treatment of Thyrotoxicosis: II. Toxic Reactions, J. Clin. Endocrinol. **6**: 23-51 (Jan.) 1946.

8. In the patients reported on in January 1946,[6] the following results were obtained: Of the 49 patients who had had no relapse at that time, 10 have subsequently had a relapse. In 5 patients the relapse occurred within eight months after cessation of treatment; in 4 it occurred between twelve and eighteen months, and in 1 at twenty-four months. Of the 51 patients constituting the "relapse group," 14 had an additional course of thiouracil; 7 of these have remained well for more than two years after cessation of therapy.

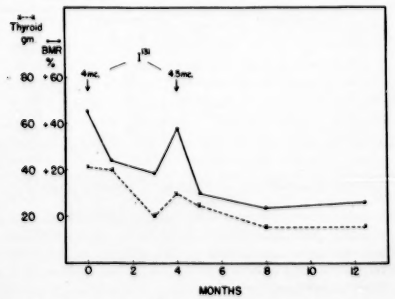
9. The size of the gland was estimated in grams on each visit of the patient. I am of the impression that in most patients with glands less than 60 Gm. in weight satisfactory estimations can be made.

had had thiouracil for more than eight months, although not in adequate doses in some cases. I^{131} was used in 97 patients and I^{130} in 3. The last 3 have been well for more than two years. Of the other 97 patients, only 5 have persistence of thyrotoxicity; 92 have been in remission for more than one month and 80 have had no reappearance of their disease during a period of more than four months. Myxedema developed in 3 patients and transient hypothyroidism in 13. A few subjects experienced a transient exacerbation in thyrotoxicity following radioiodine. In most of the 78 subjects with diffuse enlargement of the thyroid, the gland decreased to an essentially normal size. Each of 22 patients with toxic nodular goiter had a decrease in the size of the thyroid, but in a few subjects significant enlargement persisted in spite of large doses of radioiodine.

In a few patients as many as five doses of the isotope were given before a remission was obtained. What was considered as probably a minimal effective dosage was administered, and then after an interval of approximately two months, if a remission had not occurred, another dose was given. This plan was followed until the desired results had been obtained. The total dosage of I^{131} used before a sustained remission was produced varied from 2 to 36 millicuries. Isotope counts over the thyroid and in urine and blood and palpation of the thyroid gland, especially with reference to size and nodularity, have all been compared with the dosage of radioiodine ultimately used in the production of a remission in the hope that a method could be evolved for a more accurate determination of the amount of isotope required. However, none of these procedures has proved satisfactory. Palpation of the gland has been of more help than the other criteria. No significant effects of the radioiodine on nonthyroid tissue have been observed.

REPORTS OF CASES

B., a housewife, aged 58, had had thyrotoxicosis for ten years. She had a persistence of her disease in spite of a subtotal thyroidectomy and of roentgen therapy. She reacted to tetramethylthiourea with fever and to propylthiouracil with fever and leukopenia. She failed to respond to iodide therapy, and she refused to have another thyroidectomy. Within ten weeks, after 4 millicuries of I^{131}, her basal metabolic rate had decreased from + 30 to −24 per cent and the thyroid gland decreased from 30 to 20 Gm. Within 3.5 months after radioiodine her metabolic rate was + 3 per cent; she has remained in a euthyroid state for the subsequent two months.



Graph showing weight of thyroid gland and basal metabolic rate of patient D, as affected by administration of radioactive iodine.

D., a clerk, aged 53, failed to maintain a remission of his thyrotoxicosis on cessation of thiouracil treatment, having had this treatment for six months. Following 4 millicuries of I^{131}, he experienced a decrease in his thyrotoxicity and in the size of his thyroid gland, but within four months the gland had become larger and the metabolic rate had increased (chart). Following an additional 4.5 millicuries, the gland became smaller than normal and a state of euthyroidism has now existed for twelve months.

TABLE 8.—*Order of Choice of Treatment with Reference to Various Factors*

	Thyroidectomy	Radioiodine	Thiouracils
General availability	2	3	1
Rapidity of cure	1	2	3
Permanency of cure	1	2	3
Mortality	3	1	2
Paralysis of vocal cords	3	1	1
Hypoparathyroidism	3	2	1
Myxedema	2	3	1
Physical discomfort	3	1	1
Emotional upset	3	2	1
Persistent goiter	1	2	3
Scarred neck	3	2	1
Large nodular goiter	1	2	3
Large diffuse goiter	1	1	2
Expense	3	2	1
Regulation of therapy	2	2	1
Time lost from work	3	1	2

COMMENT

The data presented show that good results can be obtained with each of the three main types of therapy, although each has certain disadvantages. The problems, nonthyroidal as well as thyroidal, presented by a large group of thyrotoxic subjects may vary considerably and the type of therapy selected should take these problems into consideration. Some of the factors deserving attention in the selection of therapy are presented in table 8. Circumstances which are of little concern in certain cases demand serious consideration in others. Since there is great variation in the number and significance of these factors, as well as others, one is handicapped in making generalizations, but a few of these may be stated.

Radioiodine.—This form of treatment is favored by most of the patients because it is, to them, the simplest therapy. It is relatively inexpensive and is not associated with significant physical or emotional discomfort. It contracts the diffuse goiters to an essentially normal size, and in the majority of cases a remission of hyperthyroidism can be produced within six months. It has not caused death, hypoparathyroidism or paralysis of the vocal cords. It can be used in a few cases in which treatment with thiouracils or thyroidectomy would be associated with serious risk. It causes partial contraction of nodular goiters, but a point may be reached where, although the gland is still enlarged, it will not contract further. Such goiters tend to have many cysts, much fibrous tissue and numerous calcium deposits; radioiodine would not be expected to affect this type of tissue significantly.

The main drawback of this type of treatment is the difficulty involved in selecting the appropriate dosage, errors in which may either cause myxedema or permit the thyrotoxicity to persist. Errors of underdosage are less important than those of overdosage, since the former can be corrected by subsequent therapy. No significant nonthyroidal toxic reactions have been encountered. Much has been written, particularly in

the lay press, about its carcinogenic powers. However, it remains to be determined whether, in the doses that I have used, it has a significant carcinogenic effect.

Radioiodine is distinctly less available throughout the country than are the other forms of therapy and, in the light of present information, it should remain so. Extensive use of it could pose a number of public health considerations. Moreover, the selection of appropriate dosage is more difficult than is the case with thiouracils.

Radioiodine is convenient for use in patients who have had prolonged treatment with one of the thiouracils but have failed to maintain a remission on cessation of treatment. Such patients have usually built up a strong hope that they will not have to have a thyroidectomy and are well pleased to learn that the isotope can be used instead.

Thiouracils.—One of the thiouracils, of which the propyl derivative is the one commonly used at present, can be employed wisely in some cases. Its general availability is of distinct advantage; high grade surgical treatment of the thyroid and radioiodine are available to only a relatively small proportion of patients. The ability to regulate the dosage is of distinct importance, especially in patients with psychobiologic disintegration and in those with pituitarigenic ophthalmopathy. Treatment with thiouracil is relatively simple and inexpensive and is not associated with paralysis of vocal cords, hypoparathyroidism or permanent myxedema. Although most of the patients treated with it for prolonged intervals experience a decrease in the size of the goiter, the limited extent of the decrease is such as to warrant consideration of the other types of therapy when large goiters are present, especially nodular ones. It is difficult to predict in a given case whether a course of thiouracil therapy will be followed by a sustained remission. However, the chances are sufficiently good in female patients over 30, with small goiters and slight thyrotoxicosis, to warrant a trial with propylthiouracil. The long duration of the therapy and the uncertainty of the results are of distinct concern to some patients. Moreover, it should be of concern to the physician when he observes that it is producing in the patient an attitude of chronic invalidism. Thiouracil therapy can be used effectively in patients who have had or may be likely to have complications from thyroidectomy.

Subtotal Thyroidectomy.—This method of therapy has an advantage over the other types in that it has become highly developed and the immediate and long range results from it have been well established. It produces a quicker sustained remission, and it actually removes the goiter. The remissions from this type of treatment may be more permanent than those following thiouracil treatment. It is of particular advantage in patients with large nodular goiters, especially when pressure symptoms are present. It is also indicated in patients with questionable carcinoma of the thyroid. It is associated in a few cases with hypoparathyroidism, paralysis of the vocal cords and, occasionally, death. It, like the other types of treatment, may be followed by a reappearance of the thyrotoxicosis. It involves more emotional and physical upset, necessitates hospitalization and is more expensive. One of its main drawbacks is that most persons just do not like to be operated on when satisfactory results can be obtained by other methods.

SUMMARY

Of the many treatments for thyrotoxicosis that have been employed, the only ones that can be used satisfactorily are thiouracils, radioiodine and thyroidectomy. Since good results can be obtained with each of these treatments, many aspects should be considered in selecting the appropriate type of therapy for a specific patient.

Subtotal thyroidectomy is the treatment of choice when a large nodular gland is present or when a rapid recovery is one of the main objectives.

At least one long course of propylthiouracil, or an allied compound, is indicated in female patients more than 30 years of age with mild thyrotoxicosis and a small goiter. It is also the treatment of choice in patients with certain psychic problems. It can be used advantageously in patients who have had one or more subtotal thyroidectomies and in others who might constitute surgical risks. It is valuable in cases in which radioiodine or good surgical therapy is not available.

Although radioiodine can be used in any patient with thyrotoxicosis, it is particularly useful in those who have had toxic reactions to thiouracils, and in those who are not good surgical risks or who have previously had one or more thyroidectomies.

ABSTRACT OF DISCUSSION

DR. SAUL HERTZ, Boston: The excellent presentation which Dr. Williams has given us has indicated that, except for the bottleneck of availability of the isotope, therapy with radioiodine, which my colleagues and I have used successfully now for nearly seven years, would likely replace the other forms of therapy for diffuse toxic goiter. The treatment of the nodular goiter with thyrotoxicosis is still a surgical problem. Treatment with radioactive iodine has been so successful in our hands, and also in the hands of many others who have tried it (it is being investigated in about twenty different institutions at present), that we have come to the conclusion that even though the nodular goiter must eventually be operated on, the use of radioactive iodine as a method of preoperative preparation of these patients is still practical. The availability of propylthiouracil has placed in the hands of the general practitioner a potent and effective drug for the treatment and control of hyperthyroidism; however, this form of treatment requires a prolonged period of close observation. If the patient is sufficiently under control by the physician—and in most instances that is so—it is perfectly permissible to start the patient on that form of therapy. However, it should be clearly understood that this therapy offers nowhere near 100 per cent possibility of a cure. It must be made clear to the patient that even though control of the disease may be present for six months, it is required that he be under surveillance for perhaps as long as two years, to make certain that he is cured. Any other form of therapy for thyrotoxicosis also includes a follow-up period of that length, so that the main advantage of propylthiouracil is its great availability. Radioiodine now has become safe and readily usable in properly qualified hands. The amount of radioiodine which is available in the world for other purposes at present is tremendous. We have sufficient in America to cure all the toxic goiters for the next ten centuries. Although radioactive iodine is nearly specific for the condition, there may come a time when we will have a corrective of the metabolic and hormonal unbalance which occurs in a patient with hyperthyroidism sufficient to warrant giving up all the other forms of therapy in favor of its use. By a combination of the studies of the results obtainable from surgical therapy, the use of the antithyroid drugs and radioactive iodine, both as a tracer and as a therapeutic agent, we have great promise of discovering the physiologic and final method for the treatment of the disease. Radioactive iodine has been effective in a large number of cases of toxic goiter

after all other methods failed. It is the method of choice in the complicated cases wherever it is available.

DR. WILLARD O. THOMPSON, Chicago: It seems to me that this paper by Dr. Williams and the discussion by Dr. Hertz well illustrate the advance in the last few years in the treatment of toxic goiter. Just a short time ago, we thought treatment was pretty well perfected. Operative mortality had been reduced in leading clinics to about 1 per cent. Then along came radioactive iodine and the antithyroid drugs, and everything that had been written on the treatment of toxic goiter up to about three years ago is now completely out of date. With the use of antithyroid drugs, it is possible to control thyrotoxicosis completely before the patient comes to operation. As a result, the risk of operation is no greater than in a patient without thyrotoxicosis. As a result of the introduction of these drugs, operative mortality has dropped from 1 per cent to about 0.1 per cent in leading clinics. In other words, it has dropped almost to the vanishing point. As a general principle for the treatment of toxic goiter on a large scale, the best method at present is probably subtotal thyroidectomy after adequate preoperative preparation with propylthiouracil and iodine. Fortunately, it is possible to individualize the treatment of the patient, and, therefore, it is best not to adhere rigidly to any general rule but to treat each patient as an individual problem. It seems to be agreed that antithyroid drugs or radioactive iodine should be used as the sole method of treatment in patients who for some reason or other present a poor operative risk. They seem to represent the treatment of choice in patients who have persistence or recurrence of the disease following subtotal thyroidectomy. The experience of most observers indicates that when antithyroid drugs are used for medical management without operative intervention, the disease may be permanently controlled in about 60 per cent of the patients. This percentage is too low to warrant their use for routine medical management. They represent an important advance, but I do not believe that any antithyroid drug has yet been developed which produces a cure in a sufficiently large percentage of patients without toxic reactions to warrant the statement that the medical management of the disease with antithyroid drugs has arrived. As far as radioactive iodine is concerned, the results appear to be promising. This may prove to be the method of choice in the treatment of exophthalmic goiter. Probably we should reserve judgment for a few years until we see just what the status of this therapeutic agent is, that is, whether there are any untoward late complications. A few years ago my associates and I irradiated the pituitary in a small series of patients with exophthalmic goiter and cured about a third of them with that method. This percentage of cures is, of course, altogether too small, but the results are interesting from the standpoint of the mechanism involved in the disease.

DR. CECIL J. WATSON, Minneapolis: Would Dr. Williams comment on the question of possible increase in incidence of carcinoma of the thyroid five, ten or fifteen years hence in persons who have received radioactive iodine (I^{131})?

DR. WILLIAMS: I should like to reemphasize the fact that there is a place for each of the three methods of therapy for thyrotoxicosis. In selecting the type of treatment to prescribe, one should consider not only the many specific problems of the patient, but also the quality of therapy available in the subject's community. The latter aspect is of especial concern in recommending thyroidectomy or radioiodine. On the other hand, propylthiouracil is available for use in any community. I am of the impression that following appropriate treatment with this compound for one to one and a half years a sustained remission will occur in approximately 70 per cent of female patients over 30 years of age, with mild thyrotoxicosis and only slight enlargement of the thyroid gland. In the cases in which propylthiouracil therapy is unsuccessful, thyroidectomy or radioactive iodine may still be prescribed. In reply to Dr. Watson's question concerning the carcinogenic effect of radioiodine, the significance of this complication remains to be determined. However, I am of the impression that the possibility should not be regarded as a strong contraindication of therapy, on considering the amount of activity in the doses of radioiodine that we used, and the fact that the greatest concentration of isotope occurs in the thyroid gland, an infrequent site for highly malignant neoplasms.

Special Article

PRIMER ON THE RHEUMATIC DISEASES

PREPARED BY A COMMITTEE OF THE AMERICAN RHEUMATISM ASSOCIATION

INTRODUCTION

This is the third edition of the Primer. The first was published by the American Committee for the Control of Rheumatism in 1934 in cooperation with the Committee on Scientific Exhibit of the American Medical Association. A second edition, devoted only to arthritis, was published in 1942 by a committee of the American Rheumatism Association, the latter organization having meanwhile succeeded the American Committee for the Control of Rheumatism. Now advances in knowledge of the rheumatic diseases necessitate this third edition, which is brought out at this time especially in connection with the Seventh International Congress on Rheumatic Diseases to be held in New York City from May 30 to June 3, 1949.

SCOPE OF THE PRIMER

This edition is concerned with the rheumatic diseases in general. As in the case of the previous Primers, its purpose is to present its subject matter as simply and briefly as is consistent with adequate coverage and to present it from the point of view of the general physician rather than that of the specialist.

The term "rheumatism" as employed here includes that large and rather miscellaneous group of diseases and disorders of the supporting tissues which are of concern to the American Rheumatism Association; namely, rheumatic fever, the various forms of arthritis and the large group of less clearly defined disorders such as fibrositis, myositis, bursitis, neuritis and neuralgia. It is not intended to include the structural defects of the bones and joints which are the primary concern of the orthopedic surgeon, although many of these are listed in the classification for the sake of completeness.

Because of the condensed nature of this Primer it has not seemed advisable to give individual references to specific articles in the medical literature. However, a number of general references are cited in the bibliography and the reader is referred particularly to the Review of American and English Literature which appears each year in the *Annals of Internal Medicine* under the editorship of a committee of the American Rheumatism Association.

INCIDENCE OF RHEUMATIC DISEASES

In 1938 the United States Public Health Service reported a survey of the calculated incidence of a large number of diseases in the United States. The results, which are summarized in table 1, revealed that the rheumatic diseases are the most common cause of chronic illness and that they disable each year ten times as many persons as diabetes and tuberculosis, seven times as many as cancer and twice as many as heart diseases. Furthermore, the rheumatic diseases enumerated in the survey included arthritis, gout, neuralgias,

This article has been abbreviated in THE JOURNAL by omission of the bibliographical references. These may be found in the authors' reprints.

The Committee of the American Rheumatism Association consists of Dr. Currier McEwen, New York, Chairman; Drs. Joseph J. Bunim, Richard H. Freyberg, Edward F. Hartung and Charles Ragan, New York; Dr. John H. Talbott, Buffalo, and Dr. Hans Waine, Boston.

neuritis, lumbago and the like, but did not include rheumatic heart diseases. Hence, if corrected for the latter, the incidence would have been found even higher.

In respect to days lost from work, the rheumatic diseases were surpassed only by nervous and mental diseases, as shown in table 2. The estimated cost of medical care alone for the patients exceeds $100,000,000 annually, but to this sum there must be added an inestimable amount due to losses in production and education occasioned by disability among workers and students. These indications of the enormous economic loss resulting from rheumatism are borne out by data from other countries. In England, for example, it has been estimated that rheumatism causes one sixth of the total industrial disability, and one sixteenth of all funds paid out by that country for pensionable invalidity is for the rheumatic diseases.

It must be emphasized that the rheumatic diseases in tables 1 and 2 include far more than the definite arthritides and that figures of the magnitude shown are reached because of the inclusion of fibrositis, bursitis and other nonarticular forms of rheumatism. Unfortunately, accurate data are not available as to the incidence of the individual rheumatic diseases in the United States. It has been estimated that in general office or general clinic practice the distribution of rheumatic diseases in 100 patients who complain of rheumatism sufficiently to make them consult a physician is approximately as follows: 1 with rheumatic fever; 2 with gonococcic arthritis; 3 to 5 with miscellaneous forms (tuberculous arthritis, arthritis with ulcerative colitis, Charcot's joints, etc.); 3 to 5 with gout; 7 to 10 with traumatic arthritis; 10 to 20 with nonarticular rheumatism; 25 to 30 with degenerative joint disease, and 30 to 40 with rheumatoid arthritis. It has been reported that in Sweden, in 1943, 0.12 per cent of the population sought medical care because of rheumatic fever; 0.25 per cent because of rheumatoid arthritis; 0.17 per cent because of degenerative joint disease, and 0.4 per cent because of nonarticular forms of rheumatism—a total of 0.9 per cent of the people of that country who were the victims of the rheumatic diseases in that year.

TABLE 1.—*Estimated Prevalence of Specified Chronic Diseases in the United States (1937)*

Disease	Number of Cases
Rheumatism	6,850,000
Heart disease	3,700,000
Arteriosclerosis and high blood pressure	3,700,000
Hay fever and asthma	3,450,000
Hernia	2,100,000
Hemorrhoids	2,000,000
Varicose veins	1,750,000
Chronic bronchitis	1,700,000
Nephritis and other kidney diseases	1,550,000
Nervous and mental diseases	1,450,000
Goiter and other thyroid diseases	1,200,000
Sinusitis	1,150,000
Cancer and other tumors	930,000
Diseases of female organs	720,000
Tuberculosis, all forms	680,000
Diabetes mellitus	660,000
Diseases of gallbladder and liver	640,000
Other diseases of the circulatory system	440,000
Chronic tonsillitis and other throat disorders	380,000
Ulcers of stomach and duodenum	330,000
Diseases of bladder and urethra	270,000
Chronic diseases of the skin	270,000
Anemia	240,000
Chronic appendicitis	170,000
Chronic diseases of the eye	150,000
Chronic diseases of the ear	100,000
Chronic pleurisy	90,000
Diseases of the prostate and male genitourinary organs	80,000

From The National Health Survey, Bulletin 6, Sickness and Medical Care Series, United States Treasury Department, Public Health Service, 1938.

ORGANIZATION OF THE ATTACK AGAINST THE RHEUMATIC DISEASES

It is obvious that a group of diseases having the numerical and economic importance of those with which we are dealing demands an organized effort to combat it. One of the earliest organized attempts to study the rheumatic diseases was started in England with the Cambridge Committee for the Study of Special Diseases; but this was interrupted by the first world war. In 1920, the Ligue Internationale contre le Rheumatisme was established with headquarters at the Hague. Although originally composed principally of European representatives, the Ligue encouraged the establishment in other countries of groups interested in the problem. This movement extended to the United States in 1928 with the formation of the American Committee for the Control of Rheumatism. This committee worked actively to arouse the interest of the profession in the magnitude of the sociologic problem presented and to extend knowledge of the rheumatic diseases by means of publications and through exhibits in connection with the Scientific Exhibit of the American Medical Association. By 1930, it was apparent that there should be a national society for the study and control of the rheumatic diseases, and the American

TABLE 2.—*Estimated Annual Number of Days Lost from Work or Other Usual Pursuits by Reason of Specific Chronic Diseases (United States, 1937)*

Disease	Annual Number of Days Lost
Nervous and mental diseases	132,500,000
Rheumatism	97,200,000
Heart disease	95,200,000
Arteriosclerosis and high blood pressure	56,900,000
Tuberculosis, all forms	41,400,000
Cancer and other tumors	36,300,000
Nephritis and other kidney diseases	28,400,000
Diseases of the female organs	26,800,000
Hay fever and asthma	21,900,000
Diseases of gallbladder and liver	20,000,000
Diabetes mellitus	19,200,000
Ulcers of the stomach and duodenum	13,600,000
Hernia	13,600,000
Chronic diseases of the skin	10,300,000
Anemia	8,500,000
Diseases of the bladder and urethra	8,200,000
Chronic bronchitis	8,000,000
Chronic appendicitis	7,600,000
Goiter and other thyroid diseases	7,600,000
Other diseases of the circulatory system	6,600,000
Sinusitis	6,000,000
Varicose veins	5,900,000
Chronic tonsillitis and other throat infections	5,400,000
Hemorrhoids	5,100,000
Chronic pleurisy	4,200,000
Chronic diseases of the eye	4,200,000
Chronic diseases of the ear	3,300,000
Disease of the prostate and male genitourinary organs	3,300,000

From The National Health Survey, Bulletin 6, Sickness and Medical Care Series, United States Treasury Department, Public Health Service, 1938.

Rheumatism Association was founded. The association holds yearly scientific meetings, sponsors an extensive annual review of the English and American literature and promotes wider interest and more precise knowledge concerning these disorders. The formation of affiliated societies at state, regional or local levels has been encouraged.

Under the auspices of the Ligue Internationale contre le Rheumatisme six international congresses have been held and the seventh will be held in New York City from May 30 to June 3, 1949.

TABLE 3.—*Classification of Rheumatic Diseases*

Arthritis due to infection. *Specify joint and infection when known, as:*
- Arthritis of spine due to tuberculosis
- Arthritis of knee due to gonococcic infection
- Arthritis of wrist due to pneumococcic infection
- Arthritis of knee due to syphilis

Arthritis due to rheumatic fever. *Record Rheumatic fever as primary diagnosis invariably*

Arthritis, rheumatoid, of....*Specify as:*
- Arthritis, rheumatoid, multiple (proliferative arthritis,* atrophic arthritis,* chronic infectious arthritis,* Still's disease *)
- Arthritis, rheumatoid, of spine (Marie-Strümpell arthritis,* ankylosing spondylitis,* von Bechterew spondylitis,* spondylitis ankylopoietica,* spondylitis rhizomelique *)

Arthritis due to direct trauma of....*Specify joint and trauma, as:*
- Arthritis of knee due to contusion
- Arthritis of elbow due to habitual dislocation

Neurogenic arthropathy, (Charcot joint *) *Specify joint and cause, as:*
- Tabetic arthropathy of knee

Arthritis due to gout. *Specify joint. Record Gout as primary diagnosis invariably*

Degenerative joint disease, multiple, due to unknown cause (osteoarthritis,* hypertrophic arthritis,* degenerative arthritis,* chronic senescent arthritis *)

New growths of joints. *Specify joint and neoplasm as:*
- Synovioma of knee

Hydrarthrosis, intermittent, of....*Specify joint*

Fibrositis. *Specify joint or area*

Myositis, bursitis, neuritis, and neuralgia. *Specify muscle, bursa or nerve involved*

Diseases in which arthritis, arthropathy or arthralgia is frequently associated (diagnose disease, list joint manifestation as symptom)
- Acromegaly
- Acute disseminated lupus erythematosus
- Cyst of meniscus of knee
- Dermatomyositis
- Drug intoxication. *Specify drug when known*
- Erythema multiforme exudativum
- Erythema nodosum
- Hemophilia
- Hysteria
- Ochronosis
- Osteochondritis dissecans
- Osteochondromatosis
- Periarteritis nodosa
- Psoriasis
- Purpura, various types
- Raynaud's disease
- Reiter's disease
- Scleroderma
- Serum sickness

* Names in parentheses are synonyms.

Just before the entry of this country into the second world war, a committee of the American Rheumatism Association was appointed to study the possibility of undertaking a national fund-raising effort to support research and teaching and the care of patients with rheumatic diseases. This important undertaking was delayed by the outbreak of hostilities, but since the end of the war rapid progress has been made. Under the sponsorship of the American Rheumatism Association, a separate organization, the Arthritis and Rheumatism Foundation, has been founded with a board composed of physicians and influential laymen and with the purpose of organizing the essential appeal for funds on both a national and a local basis. At the same time, the National Research Council has established a committee on the rheumatic diseases, at the request of the American Rheumatism Association, which is making a survey of facilities for patient care, research and teaching and which will evaluate applications for grants in aid of research as the foundation acquires the necessary funds. Thus, at long last, a national program has been inaugurated which can make an organized attack on this serious group of diseases which afflicts so many millions of persons and causes such a vast economic loss to the nation.

CLASSIFICATION

Rheumatic diseases may be roughly divided into rheumatic fever, arthritis and the periarticular and nonarticular forms of "rheumatism" such as fibrositis, bursitis and myositis.

The majority of cases fall into seven important groups: (1) arthritis due to known microbial agents, (2) the arthritis of rheumatic fever, (3) rheumatoid arthritis, (4) degenerative joint disease, (5) arthritis due to direct trauma, (6) arthritis of gout and (7) the nonarticular forms of rheumatism. No classification of diseases can be entirely satisfactory while the etiology of many of those diseases remains unknown. That shown in table 3 is admittedly imperfect, but it has the great merit that it has been adopted as official by both the American Rheumatism Association and the Standard Nomenclature of Disease, and much confusion in terminology will be avoided by its use.

These various forms of rheumatic diseases are discussed in the pages which follow; hence only a few comments are called for at this point:

1. Rheumatoid arthritis. Under this heading are included certain diseases which are thought to be merely variants of classic rheumatoid arthritis, such as Still's disease, Marie-Strümpell or ankylosing spondylitis and arthritis associated with psoriasis. Hence these should be listed as rheumatoid arthritis, but, because the relationship is not established with certainty, the other name should be added in parenthesis.

2. Degenerative joint disease. It is now accepted that this is a process related to advancing age and "wear and tear." Hence it occurs in multiple joints with greater or lesser symptoms in all persons who live long enough. The complete explanation of this form is still lacking, however; hence in table 3 it is noted as "due to unknown cause." Other cases, however, occur in younger persons and usually involve only one or two joints. Careful history and examination will usually reveal one of three predisposing causes in such cases which hastened the wear and tear in those particular joints. These are: (1) congenital defects, (2) previous important injury or (3) previous arthritis of other types. In these instances the predisposing cause should be noted in the diagnosis, as, for example, "degenerative joint disease of right knee secondary to old intracapsular fracture."

3. The term "mixed arthritis" is to be avoided. When employed in the past it has usually been applied to patients who show evidences of both rheumatoid arthritis and degenerative joint disease. A preferable diagnosis in such cases is "rheumatoid arthritis" if that is the cause of the major disability or, rarely, "degenerative joint disease secondary to inactive rheumatoid arthritis" if the latter disease, as such, contributes little to the disability.

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ARTHRITIS DUE TO KNOWN MICROBIAL AGENTS

In this section, diseases of the joints caused by the following micro-organisms are described:

Staphylococcus	Meningococcus
Streptococcus	Tubercle bacillus
Pneumococcus	Treponema pallidum
Gonococcus	Brucella

Infections of the joints caused by Eberthella typhosa, Escherichia coli, Bacterium dysenteriae, Leishmania donovani (granuloma inguinale), the virus of lymphogranuloma venereum and certain fungi have not been included because of their relative infrequency.

STAPHYLOCOCCIC, STREPTOCOCCIC, PNEUMOCOCCIC, GONOCOCCIC AND MENINGOCOCCIC ARTHRITIS

Arthritis due to infection with the various pyogenic cocci can be conveniently described as a group because cases due to the different micro-organisms are very similar. These arthritides are often referred to collectively as acute pyogenic arthritis.

Incidence and Pathogenesis.—The incidence of acute infectious arthritis caused by organisms that are sensitive to antibiotic drugs has fallen decidedly during the past decade. Well above half the cases in this group are caused by the staphylococcus and hemolytic streptococcus. The bacteria may reach the synovial tissue by hematogenous dissemination from a remote focus. Staphylococci and hemolytic streptococci may invade the joint by direct extension from a suppurative process in adjacent bone, such as osteomyelitis or epiphysitis. They may also be directly introduced into the cavity by a penetrating wound.

Pathology.—The pathologic changes vary in degree with the severity and duration of the infection. The histologic appearance of the articular structures is that of an acute suppurative inflammation. The synovial tissue is hyperemic, swollen, thickened and infiltrated with cells which are predominantly polymorphonuclear leukocytes. If suppuration continues for several weeks, the leukocytic enzymes digest areas of the articular cartilage with resulting ulceration and irreparable destruction. When there is severe damage of the cartilage, ankylosis may result. Abscesses may form in the marrow of the subchondral bone. The soft periarticular structures often become acutely inflamed.

Symptoms.—The systemic disease may be so severe and the arthritis so relatively mild that the joint infection is overlooked. In other cases the arthritis may be unaccompanied by constitutional signs and the probable primary focus of infection remains obscure. Generally, the onset is sudden with fever, chills, sweats, malaise and anorexia. The joint is exquisitely painful and tender, red, warm and swollen. Its capsule is distended by effusion, and the adjacent muscles are in spasm. Tenosynovitis and bursitis may be associated features. As a rule only one or two joints are affected, commonly the hip, knee, elbow or shoulder, although no joint is exempt. Spondylitis and infection of the sacroiliac joint are exceptional.

Laboratory Observations.—Leukocytosis (15,000 or more) with a rise in the percentage of polymorphonuclear cells is common. The erythrocyte sedimentation rate is elevated. Blood culture will often reveal the causative micro-organism. Special effort should be made to take one or more cultures before chemotherapy is begun. In typical cases the synovial fluid is cloudy or frankly purulent and the leukocytes may number more than 100,000 per cubic millimeter with over 90 per cent polymorphonuclear cells. On bacteriologic examination (both smear and culture) of aspirated synovial fluid the organism causing the arthritis can usually be demonstrated.

Roentgenologic Changes.—These do not appear until the optimum time for successful treatment has passed. They are, therefore, of little diagnostic value. Roentgenograms show abnormalities after the tenth day and indicate the extent of damage to the articular cartilage and to the adjacent bone. They may reveal, in addition, osteoporosis and periostitis, osteomyelitis or epiphysitis.

Diagnosis.—Acute monarthritis of abrupt onset, a red, warm, swollen, exquisitely painful and tender joint, associated with fever, leukocytosis and rapid sedimentation rate is characteristic of suppurative arthritis or acute gout. The presence of bacteremia and the absence of hyperuricemia make the diagnosis of suppurative arthritis almost conclusive. Recovery of the organism from synovial fluid by smear or culture proves the diagnosis.

Prognosis and Course.—The prognosis as to life is generally determined by the nature of the systemic disease and the presence or absence of serious extra-articular complications. Probably the most important factor in determining to what extent joint function will be restored is the time when specific treatment is begun. If therapy is started within the first week of infection the results are decidedly better than when started during the second week. After the third week, the end results are generally poor.

Treatment.—The guiding principles of treatment are to halt the joint infection before the articular cartilage is destroyed and to begin motion before adhesions and muscle atrophy develop. Early bacteriologic diagnosis and prompt chemotherapy are essential. Hemolytic streptococci, pneumococci and meningococci as a rule are sensitive both to sulfonamide compounds and to penicillin. Staphylococci and gonococci are rather susceptible to the action of penicillin and often resistant to the sulfonamide compounds. Both drugs permeate inflamed synovial tissue, and oral or intramuscular administration in adequate dosage obviates the need for intra-articular injections. The average dose used is 40,000 units of penicillin given intramuscularly every three hours, or 1.0 Gm. (grains 15) of sulfadiazine by mouth every four hours until the temperature is normal and the synovial fluid becomes sterile. In severe infections both drugs may be used. When the joint fluid becomes sterile any excess fluid is gradually absorbed after chemotherapy is stopped. If the infectious process does not respond to oral and intramuscular chemotherapy, intra-articular instillation of penicillin (20,000 units in 10 cc. of isotonic sodium chloride solution every twenty-four or forty-eight hours) or in exceptional cases surgical drainage may become necessary. The joint should be immobilized in splints or by traction until the arthritis subsides. Active motion within the range of the patient's capacity to tolerate the discomfort should be instituted as early as possible even while the joint is in cast or traction. This will promote better functional results and shorten the period of disability. Physical therapy may be administered after

the temperature has returned to normal and the local infection has subsided.

Features Associated with Specific Types of Pyogenic Arthritis.—In addition to the foregoing general comments, which are applicable to acute arthritis caused by all the pyogenic cocci, certain features of gonococcic and meningococcic arthritis warrant individual mention.

(*a*) Gonococcic Arthritis: Although more than 1,000,000 new cases of gonorrhea occur annnually in this country, the incidence of the articular complications has fallen from 3 to less than 0.5 per cent, largely as a result of the use of penicillin, which cures 95 per cent or more of the cases of uncomplicated gonorrhea. The organism spreads from the primary focus in the genitourinary tract through the lymphatics and blood stream to the synovial tissues. Yet in only 25 per cent of the cases is the diplococcus recovered from the joint fluid, rarely from the blood stream. Arthritis usually appears within ten to thirty days after the initial infection; months to years may, however, intervene between the urethritis and arthritis.

The onset is sudden, usually with an acute migratory polyarthritis which in a few days to a week becomes monarticular. Tenosynovitis occurs more frequently than in any other types of arthritis, particularly when the wrists or small joints of the hands or feet are affected. The constitutional reactions, such as fever, leukocytosis and accelerated sedimentation rate, are less severe than the local signs.

Cultures of exudate and synovial fluid will yield positive results several times more frequently than smears, although occasionally the smear is positive and the culture negative; both procedures should be done. The reaction to the gonococcus complement fixation test becomes positive within ten to thirty days of the onset of arthritis in 90 per cent or more of the cases. Tests should be repeated at weekly or biweekly intervals if results of the earlier ones are negative and the diagnosis remains in doubt. Chemotherapy apparently does not affect the specificity of this test. Since patients whose serum gives a positive reaction may acquire another type of arthritis, this test alone does not prove the diagnosis of gonococcic arthritis. Contrariwise, a negative reaction to a complement fixation test does not exclude such a diagnosis. There are no characteristic roentgen changes in gonococcic arthritis which distinguish it from other types of suppurative joint disease.

The diagnosis of gonococcic arthritis may be made on the basis of (1) history of exposure and typical clinical course, (2) demonstration of the gonococcus in the exudate of the genital tract, (3) positive culture or smear of the synovial fluid, (4) positive complement fixation and (5) recovery or definite improvement with penicillin or sulfonamide therapy. In the absence of (3) the diagnosis is presumptive and in the absence of (3) and (5) it should be carefully reconsidered, as rheumatoid arthritis may prove to be the correct diagnosis. Gonococcic arthritis in its early polyarticular phase often simulates rheumatic fever.

Gonococci are more sensitive to the action of penicillin than are streptococci, and fastness to this drug has not yet been observed. Treatment may be supplemented with sulfadiazine or fever therapy with advantage in stubborn cases. Until these measures bring relief, immobilization will offer the patient considerable comfort.

(*b*) Meningococcic Arthritis: The incidence of articular complication during meningococcic infections has varied with different epidemics from 2 to 20 per cent.

There are two general types of arthritis associated with this disease. One occurs during the first few days and consists of a transient synovitis which resolves spontaneously without progressing to effusion or suppuration. It may develop concomitantly with the generalized purpuric eruption commonly seen in severe meningococcemias. Intra-articular and periarticular petechial hemorrhages have been observed. Multiple joints are affected simultaneously. Arthralgia may be the only manifestation; often, however, the joints are tender and red. Swelling is slight, if present at all, and effusion is exceptional. Normal joint function is restored in a few days.

The second type occurs toward the end of the first week of illness. The meningococci invade and damage the synovial tissue and produce purulent arthritis. This type usually is monarticular. The knee or wrist are most commonly affected; any other peripheral joint may, however, be involved. The joint is acutely inflamed and distended with effusion. A diagnosis of meningococcic arthritis can be proved only by recovery of the organism from the joint fluid. The general prognosis is not significantly influenced by the arthritis. The bacteremia and arthritis usually respond satisfactorily to sulfonamide compounds (orally) or penicillin (intramuscularly).

SYPHILITIC ARTHRITIS

Incidence.—The reported incidence of syphilitic disease of the joints has been declining because of stricter diagnostic criteria and earlier more adequate antisyphilitic therapy. Probably less than 1 per cent of patients with syphilis have arthritis of syphilitic origin, and not more than 0.1 to 0.5 per cent of diseases of the bones and joints in this country are due to syphilis.

Etiology.—Arthritis occurs in the course of both the congenital and the acquired type; it may appear during infancy, childhood or early adult life. In the acquired type it may be due either to direct spirochetal infection of the joints or to neurogenic changes (Charcot's joints) secondary to tabes. The latter constitutes about half of the cases in the acquired group.

Clinical Types and Symptoms.—(*a*) Arthralgia: Vague muscle and joint pains without objective signs of arthritis may occasionally be seen during the height of the systemic reaction in early acquired syphilis.

(*b*) Osteochondritis, Periostitis and Synovitis: Among syphilitic infants osteochondritis (including epiphysitis) and periostitis are commonest. The joint is markedly swollen as a result of periarticular infiltration. Motion is limited (Parrot's pseudoparalysis), but there is practically no pain on manipulation. Among older children (8 to 16 years) symmetric, painless synovitis (Clutton's joints) is the commonest form of syphilitic arthritis. This type is rarely encountered in adults with acquired syphilis. The knees are most commonly affected. There is decided effusion bilaterally without redness and with only slight, if any, pain, tenderness or warmth. There are no bony changes, and ankylosis never results. Response to specific treatment is usually good. Occasionally the process ends spontaneously after following a chronic course. Interstitial keratitis is often associated with Clutton's joints.

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(*c*) Gummatous Arthritis: Gummatous arthritis may occur in late tertiary syphilis, congenital or acquired. It is frequently monarticular. A gumma may arise in bone and extend into an adjacent joint, or it may originate in the synovia or other soft articular or periarticular structures. Swelling with little or no pain and without stiffness, local heat or muscle spasm is characteristic. Bone destruction with osteolytic areas is frequently seen on roentgenograms. Response to antisyphilitic therapy is striking.

(*d*) Charcot's Joints: Charcot's joints are seen in about 5 to 10 per cent of patients with tabes dorsalis. The pathogenesis of this form of arthropathy is not clearly understood, but experimental evidence indicates that it is not due to actual trophic changes and suggests that this disorder is merely a rapidly developing degenerative process in joints lacking the protection of pain and position sense and hence used in an awkward and traumatizing manner. The onset may be gradual or sudden and the course progressive or stationary. One large joint of the lower extremities is usually affected, but the process may be multiarticular and occasionally symmetric. The "flail joint" is enlarged, deformed and can be painlessly flexed, extended and rotated to extraordinary degrees in several directions. Warmth, redness and tenderness are absent. On roentgenographic examination there are usually destructive and productive bone changes with pathologic fractures, disintegration and disorganization of the joint. The blood and spinal fluid Wassermann reaction may be negative in cases of "burned out" tabes dorsalis. In such cases neurologic signs of tabes suggest the diagnosis. Antisyphilitic therapy is ineffective but should be administered. Treatment consists of orthopedic measures (mechanical or surgical) for effecting immobilization and stabilization. Fusion has been reported to be successful in carefully selected cases.

Differential Diagnosis.—It is important to establish whether arthritis present in a patient with syphilis is of syphilitic origin or coincidental. A positive Wassermann reaction on the synovial fluid and blood is not conclusive. The diagnosis is proved by (1) unequivocal response to antisyphilitic therapy, (2) positive biopsy of synovial or juxta-articular tissue or (3) positive result from injection of joint fluid or tissue intratesticularly into a rabbit. It is presumptive in the presence of (1) positive serologic reaction, (2) other stigmas of congenital or acquired syphilis or (3) characteristic changes in the bones seen in roentgenograms.

Treatment.—Penicillin is the treatment of choice. A total of at least 4,000,000 units should be given over a period of not less than fifteen days. If aqueous solutions of penicillin are used, individual injections should be given every four hours. If slowly absorbed preparations, such as procaine penicillin in oil and 2 per cent aluminum monostearate, are used, injections of 450,000 to 600,000 units can be given three times a week until ten or twelve injections have been given. If penicillin fails arsenic and bismuth compounds should be tried. The arsenical of choice is arsenoxide (oxophenarsine hydrochloride, dichlorophenarsine hydrochloride or phenylarsine hydrochloride).

TUBERCULOUS ARTHRITIS AND SPONDYLITIS

Incidence.—The incidence of tuberculosis of bone and joints is declining in this country. In approximately 4 per cent of patients with tuberculosis infection of skeletal structures develops, and 1 per cent of the deaths from tuberculosis result from tuberculous spondylitis. In 1947 there were about 400,000 cases (old and new) of tuberculosis in the United States of which approximately 16,000 had involvement of bones or joints.

Etiology and Pathogenesis.—Tuberculosis in man is caused almost exclusively by the human type of bacillus, since less than 0.4 per cent of the cattle in this country are infected. The primary lesion develops in the lung as a result of infection by inhalation. The bacilli spread from this focus to the bronchopulmonary lymph nodes, where, under suitable circumstances, caseation results. Infected lymph nodes are the commonest source of hematogenous dissemination, and organisms may metastasize by this route to bone or directly to synovial tissue.

Tuberculous arthritis generally develops before the age of 14, although not infrequently this disease occurs in patients above 50. Eighty-five per cent of the cases of tuberculosis of the spine begin before the age of 10. Negroes are especially susceptible because of the greater relative incidence of hematogenous dissemination among them.

Pathology.—The joints of the lower limbs are involved much more frequently than those of the upper. The spine (Pott's disease) is affected more often than any peripheral joint. In the spine the lower thoracic and upper lumbar vertebrae are the usual sites. Bone destruction results in collapse of the vertebra and the process then spreads along the anterior or posterior longitudinal ligaments to involve several vertebrae above or below. In some cases infection spreads from one vertebra to the next through the intervertebral disk, which is thus eroded relatively early. When circumstances lead to progression of the disease, tubercles multiply and coalesce, their blood supply becomes inadequate, and necrosis, caseation and eventually liquefaction and abscess formation follow. The abscess usually dissects along a path between fascial planes or muscle bundles and may appear at a distant point, then rupture and leave a discharging sinus. When, however, resistance to invasion is good, the infection may become quiescent and finally arrested. The lesion may then resolve or heal by fibrosis or bony fusion.

Tuberculosis of the peripheral joints may result either from direct bacillary invasion of the synovial tissue (tuberculous synovitis) or from penetration into the joint by tuberculous tissue from adjacent diseased bone (osteoarticular). The granulation tissue which soon forms undermines and separates the articular cartilage. Periarticular swelling with relatively little effusion develops. Caseation, abscess and sinus formation may result. The articular cortex and neighboring bone is often destroyed. The gross pathologic appearance of a tuberculous joint often cannot be distinguished from that of rheumatoid arthritis.

Clinical Types and Symptoms.—(*a*) Tuberculous Spondylitis (Pott's Disease), and Arthritis: Both forms are characterized by an insidious onset, a chronic progressive course protracted for months or years with remissions and exacerbations and the involvement of usually one, occasionally two and rarely three or more joints or vertebrae. Tuberculous arthritis resembles other forms of arthritis in that spasm of the regional muscles is severe and disabling, but it differs from them in that muscle atrophy is relatively early and

prominent, while articular pain and tenderness are comparatively late. The typical joint is warm, boggy and swollen. The doughy feeling and swelling are due chiefly to edema and infiltration of the synovial tissue rather than to effusion, which is scanty. Redness may be present early but is usually absent in the advanced stages. Not infrequently the patient emphasizes trauma in the history of events immediately preceding his arthritis. Constitutional symptoms, such as fever, loss of weight or sweating, usually are not conspicuous.

(*b*) Tuberculous "Rheumatism" (Poncet's Disease): Tuberculous rheumatism has been described as a nondestructive tuberculous polyarthritis resembling either rheumatic fever or rheumatoid arthritis, occurring in a patient who has a tuberculous lesion elsewhere. It is doubtful, however, that such an entity exists, and diseases so diagnosed are probably other forms of joint disease occurring in patients who happen also to have extra-articular tuberculosis.

Associated Features and Complications.—Since the tubercle bacilli reach the spine, juxta-articular bone or synovial membrane by the blood stream, it is to be expected that extra-articular tuberculosis may exist. Pulmonary tuberculosis is common; infections of the serous membranes and urogenital tract are less frequent.

The commonest complication is abscess formation in the paravertebral region or in the vertebral bodies when the spine is affected and in the bone or periarticular soft structures when a peripheral joint is involved. Sinuses originating from an abscess or joint often form and when present suggest the diagnosis. In Pott's disease meningitis and paraplegia are not uncommon. When the tuberculous infection is prolonged secondary amyloidosis may result.

Laboratory Observations.—The total and differential leukocyte counts are usually normal. The erythrocyte sedimentation is elevated. On bacteriologic study the tubercle bacillus will be found in the synovial fluid, synovial tissue or the pus aspirated from an abscess or expressed from a sinus. It may be demonstrated by smear or recovered by culture or after inoculation of suitable material into guinea pigs. A biopsy of the synovial tissue will show the pathognomonic tubercle. Lymph nodes in the region of an involved joint may show evidence of tuberculous infection. The total cell count of synovial fluid may vary from 5 to over 100,000 per cubic millimeter, and the differential count is not characteristic, although there may be more lymphocytes and monocytes than in other types of arthritis. The total protein content per hundred cubic centimeters of fluid is increased.

Tuberculin Test: A positive tuberculin reaction is only suggestive evidence of tuberculous arthritis. A negative reaction is strong evidence against the diagnosis.

Roentgenologic Observations.—In a typical case the roentgenogram will fail to show any changes in the early stages of the disease. The first signs consist of a haziness or cloudiness of the joint due to periarticular swelling, synovial effusion and thickening. The joint space is preserved until late. Pronounced decalcification of bone follows the earlier changes, and subsequently marginal erosion with thinning and interruption of the articular cortex is seen. In the advanced stages, as bone destruction progresses, sequestration, abscess and sinus formation may become visible. Calcium deposition and new bone formation are conspicuously absent. These roentgenographic changes are typical, but they are not diagnostic or specific, since similar changes may be seen in other types of arthritis.

Course and Prognosis.—Unless the disease is checked, tuberculous arthritis follows a protracted course of progressive destruction of bone and articular structures lasting several years. Remissions and exacerbations are usually observed. Recovery of normal joint function is rare. Pott's disease carries a decidedly graver prognosis than tuberculosis of a peripheral joint. In no type of arthritis is the mortality rate as high as in tuberculosis of the spine. In one analysis the death rate was 9.5 per cent among patients without extra-articular lesions and 54.5 per cent among those with active tuberculosis of other organs. It is anticipated that the use of streptomycin will improve the prognosis in certain cases.

Treatment.—The same principles which govern the treatment of tuberculosis elsewhere in the body apply when the bones and joints are infected. There is no substitute for prolonged care. The general resistance of the body should be enhanced by appropriate measures, such as rest, good care and nutritious diet.

Treatment otherwise consists of local surgical and mechanical measures and chemotherapy. Among orthopedic surgeons in this country there is a difference of opinion as to the indications or even the merits (i. e., the effect on duration and course of the disease, recurrences, complications and mortality) of surgical intervention as compared with more conservative treatment. Most authorities agree that operation is contraindicated in the presence of actively disseminating lesions elsewhere and that the chances of healing are poor unless the local process has become quiescent and stabilized and further destruction arrested. There is also general agreement that children should be treated preferably by nonoperative measures (traction, splints, braces) since epiphyseal growth is active.

Experience with streptomycin in tuberculous arthritis and spondylitis has been too limited to permit, at this time, a definitive evaluation of its efficacy. In some cases in which it was used, function was restored and healing was attained without surgical intervention; in other cases its preoperative and postoperative administration was attended by satisfactory results and no recurrences; in still others no beneficial effects were observed. Mild to moderate toxic symptoms develop in about half the cases. The bacilli often become resistant to the drug. Final opinion as to optimum dosage has not yet been formulated. At present 1.0 Gm. given daily in divided doses for ninety successive days is considered adequate treatment for the average case.

BRUCELLOSIS

Incidence.—The number of new cases of brucellosis in this country has been increasing steadily. In 1927, there were only 217 new cases; in 1937, 2,497 cases, and in 1947, 6,073 cases. The states that have the largest number of cases are Iowa, Illinois, Texas and Wisconsin. Approximately half of the patients with brucellosis experience arthralgia or myalgia, although only 10 per cent emphasize bone or joint pains as their chief complaint, and in but a fraction of this group does one find objective signs of osteoarticular involvement. Less than 100 cases of spondylitis have been reported in the literature. Permanent joint damage is rarely a result of brucellar infection.

Symptoms.—Brucellosis may assume an acute, chronic or latent form. The common symptoms are fever, chilliness, fatigue, sweating, malaise, generalized pains, headache, depression, nervousness and insomnia. In contrast to the numerous symptoms there are few physical signs. The spleen is enlarged in approximately one third of the cases. At the height of the systemic infection or during convalescence, joint symptoms may develop. Arthralgia or myalgia are common, but inflammatory joint changes are rare. The arthritis, when present, may be migratory, resembling rheumatic fever.

Diagnosis.—There are no pathognomonic clinical features of the systemic infection or the arthritis. A positive culture of blood or synovial fluid is conclusive, but the former is obtained in only 25 per cent of cases and the latter even more rarely. An agglutination test, complement fixation test, bactericidal test, skin test and opsonocytophagic test have been developed but are difficult technically and of limited value because of false negative as well as false positive reactions. No single one of these tests is diagnostic, but, if results of the agglutinin and skin test or other tests in addition are positive, the diagnosis is almost certain.

Prognosis.—The duration of brucellosis is variable and may be protracted. About 3 to 4 per cent of patients succumb to the infection. The arthritis does not influence the prognosis significantly. It is usually mild and rarely results in permanent deformity.

Treatment.—The disease is self limited and subject to spontaneous remissions and cure. Penicillin is ineffective. Streptomycin or sulfonamide drugs used alone may affect the bacteremia but do not substantially alter the course of the disease. It has been reported, on the basis of experimental studies and treatment of a relatively small group of patients with acute and chronic brucellosis, that the combined treatment with streptomycin and sulfadiazine yielded the most satisfactory results. The recommended dose is 0.5 Gm. of streptomycin every six hours given intramuscularly for seven days and sulfadiazine initiated simultaneously with an oral dose of 4.0 Gm. and 1.0 Gm. every four hours for two or three weeks. More recently, aureomycin was found more effective than streptomycin and sulfadiazine and may replace these two drugs in the treatment of brucellosis. Other antibiotics are being investigated.

RHEUMATIC FEVER

Not many years ago it would have been imperative, in a statement of this kind, to point out that rheumatic fever is not primarily a disease of the joints. This is no longer necessary, for the protean nature of the disease and the fact that carditis is its most important manifestation are now common knowledge not only to the physician but also to the layman. It is well known that rheumatic fever not infrequently occurs without any evidence of joint involvement. Nevertheless, the polyarthritis of rheumatic fever is one of the common and important forms of joint disease.

DIAGNOSIS

Rheumatic fever occurs most commonly in children and young adults but not infrequently also in the older age groups. The typical case is easily recognized by: (1) the polyarticular and migratory nature of the joint involvement, (2) the presence of other manifestations of rheumatic fever (such as carditis, subcutaneous nodules, pleuritis, erythema marginatum and chorea) and (3) the dramatic response to the antirheumatic drugs. The typical joint involvement is acute and is accompanied by a temperature of 101 to 104 F., leukocytosis and rapid erythrocyte sedimentation. The reaction to the hemolytic streptococcus agglutination test is uniformly negative, but the antistreptolysin-O titer is high in 90 per cent. Diagnosis is rarely difficult on clinical grounds. Occasionally, however, one encounters atypical cases, especially in adults, without other manifestations of rheumatic fever and in which the joint involvement is limited to only a few joints and tends to remain in those joints in subacute form several weeks in spite of antirheumatic medication. In these atypical cases the antistreptolysin titer provides additional diagnostic aid.

Differential diagnosis usually is easy. However, rheumatic polyarthritis may be confused with acute gout, early rheumatoid arthritis or arthritis of known microbial cause, such as that due to gonococcic infection. The course of disease and the diagnostic features enumerated usually make the correct diagnosis apparent. Response to therapy is particularly informative, for gout responds readily to colchicine whereas rheumatic fever does not, and the latter responds promptly to antirheumatic drugs in contrast to no or slight response in the case of rheumatoid arthritis and gonococcic arthritis. (It must be emphasized that the diagnostic feature of this therapeutic test is the effect on pain and local inflammation rather than on fever, for sufficiently large doses of antirheumatic drugs will cause a sharp drop in fever due to any cause.)

TREATMENT

Therapeutically, the essential problem in rheumatic fever is the carditis. The joint involvement does not lead to permanent damage, and adequate doses of the antirheumatic drugs will cause a prompt subsidence of the arthritis. Acetylsalicylic acid and sodium salicylate are the drugs of choice. An adequate dose is 1 Gm. (grains 15) every hour for six to ten doses the first day or two with gradual reduction at the rate of 1 or 2 Gm. daily unless arthritis returns. Doses of this size may occasionally cause vomiting, and, therefore, medication should be stopped temporarily at the first sign of nausea.

Treatment of carditis can be merely mentioned here. Essentially it is a matter of complete bed rest as long as there is any evidence of continuation of the active rheumatic infection even in low grade form. The weight of evidence indicates that the antirheumatic drugs do not have any curative effect on carditis. The following are useful criteria in deciding when the patient may be allowed out of bed: (*a*) normal temperature and leukocyte count for ten days in the absence of antirheumatic drugs; (*b*) erythrocyte sedimentation rate well on its way to return to normal; (*c*) disappearance of all rheumatic manifestations, such as subcutaneous nodules and skin rashes, and (*d*) atrioventricular conduction time within normal limits.

PREVENTION

The most important recent advances have been in prophylaxis. It is now thoroughly established that recurrences of rheumatic fever can be prevented by the prevention of the hemolytic streptococcic infections which incite them. This can be accomplished in most instances by giving daily doses of sulfadiazine prophylactically throughout the year to children who are

known to be susceptible to rheumatic fever. The recommended dose is 0.5 Gm. (grains 7½) once daily for children weighing less than 110 pounds (49.9 Kg.) and 0.5 Gm. (grains 7½) twice daily for those weighing over 110 pounds. Of course, the physician who has a patient on this regimen has a heavy responsibility to watch for possible toxic effects of the drug. During the first five weeks of treatment the child must be observed carefully, with weekly examinations including total leukocyte and differential counts to warn of the possible appearance of granulocytopenia. Fortunately, important toxic reactions are rare and occur in the first five weeks of treatment. Hence, the patient need be examined only at monthly intervals thereafter. Recently, penicillin has been tried in place of the sulfonamide compounds in order to obviate even the slight danger of toxic reactions inherent in the use of the latter. The recommended dose is 100,000 units given by mouth once daily, forty-five minutes before breakfast. Sufficient experience has not yet accumulated to establish the usefulness of penicillin in the prophylaxis of rheumatic fever; however, all indications to date are that it will be as effective as the sulfonamide compounds and that it is probably the drug of choice in view of the lack of important toxic reactions. Unfortunately, the sulfonamide compounds and penicillin are useless once an attack of rheumatic fever has started and they also fail to prevent an attack if given after the inciting hemolytic streptococcic infection has begun.

(To Be Continued)

Clinical Notes, Suggestions and New Instruments

PAPILLARY CYSTADENOCARCINOMA OF THE OVARY

Treated with Large Doses of Testosterone Propionate; Report of a Case

BYRON D. St. JOHN, M.D.
Port Washington, N. Y.

On Oct. 27, 1947, a 43 year old woman was seen with a chief complaint of swelling of the lower part of the abdomen for the previous six weeks and tenderness of the abdomen. The family history revealed that her mother had had cancer of the breast removed seven years previously and was living and well. The patient's past history revealed that she had had the usual diseases of childhood. She had had ventral suspension in 1932. Three months prior to examination she had a fibroadenoma removed from the left breast.

The results of the physical examination were normal except for the observations of the abdomen and pelvis. There was a constant rolling and gurgling of gas; the lower portion of the abdomen was swollen and distended, and the skin appeared stretched and flaky. The liver could not be definitely felt on palpation, but was percussed at the costal margin and measured 7 cm. at the midclavicular line.

Inspection revealed that the mucous membrane of the labia was normal. On digital examination the pelvic floor was found to be relaxed, the cervix was pointing toward the symphysis and was soft and open. In the hollow of the sacrum was a soft mass that felt like a pregnant uterus. Further examination was suspended pending results of an Ascheim-Zondek test. The result of this test was negative. Examination then revealed a normal uterus anterior to the mass described, and a diagnosis of ovarian cyst was made. The patient was sent to the hospital for surgical treatment.

On November 11 Dr. George Granger removed a large doughy-feeling left ovarian cyst and did a hysterectomy; he also removed the normal-appearing right ovary. The pathologic diagnosis was papillary cyst adenocarcinoma of both ovaries. The patient made an uneventful operative recovery, and on November 21 high voltage roentgen therapy was started. It was planned to give her thirty-two treatments comprising a total dose of 2,250 r to each of the four ports. However, the treatments had to be discontinued on December 17 because the patient was too sick to go to the doctor's office.

The patient became worse rapidly, and on December 22 two hard masses, 4 cm. in diameter, were felt in the right lower quadrant of the abdomen. The patient was having crampy pain and was vomiting. She was sent to the hospital for terminal care with a diagnosis of partial intestinal obstruction. A consultation was held, and it was decided that no surgical treatment was indicated. The patient was given morphine every four hours. When this no longer relieved her she was given morphine and scopolamine® every four hours. Dr. Norman Treves was called in consultation and suggested testosterone propionate, 100 mg. three times a week. The patient was moaning constantly and was semicomatose and moderately cyanotic. During this time Wangenstein drainage was operating successfully and her temperature remained normal.

The intestinal tract was emptied by the use of enemas and colonic irrigations, and on December 29 sixteen large bowel movements were reported. Trouble with water balance was now encountered, and edema developed while the patient was receiving 1,500 cc. of isotonic sodium chloride solution intravenously in twenty-four hours. Blood chlorides were 745 mg. per hundred cubic centimeters. Dextrose and sterile water were used, and the water balance was then maintained.

During this time there had been great distention of the abdomen, making it impossible to feel any masses in the abdomen. On Jan. 15, 1948, the abdomen was flat. The masses previously reported in the right lower quadrant were not palpable. On vaginal examination the cervix was fixed and a large mass behind the cervix was noted.

Pelvic examination by Dr. George Granger on January 29 revealed that in the outlet there was no hypertrophy of the clitorus; there was slight relaxation of the posterior wall. Cervical examination showed no erosion or polyps. The cervix pointed toward the hollow of the sacrum. A solid mass, the size of an orange, was felt in the cul-de-sac and extended out to the left, toward the sigmoid, as a shelf. Dr. Granger stated the belief that this mass was due to implants. The right adnexal region was essentially normal.

The patient had now received 1,200 mg. of testosterone propionate.

On February 4 the patient was discharged from the hospital, weighing 90 pounds (41 Kg.). The testosterone propionate therapy was continued at home, and the patient had a tremendous appetite and rapidly gained in strength. On March 5, one month after discharge from the hospital, the patient weighed 107¾ pounds (49 Kg.). She reported that she had unusual energy and an enormous appetite. She complained of some irritation in the region of the clitorus. The clitorus was now found to be enlarged. She complained that her breasts were small and were steadily decreasing in size and that a beard was growing, which had to be shaved each day. The moustache did not require shaving. At this time she had received 2,600 mg. of testosterone propionate.

On March 15 she weighed 111 pounds (50 Kg.) and reported that she had unusual energy, walking 5 miles a day. Her chief complaint about the testosterone propionate was that her voice wavered and cracked like an adolescent boy and that her face was broken out in acne. At this time the patient reported that she had noticed a lump in the epigastrium. The liver edge was felt 2 fingerbreadths below the costal margin, measured 10.5 cm. at the midclavicular line and felt firm. A hard nodule was felt on the surface of the liver.

On April 6 it was noted on pelvic examination that the cervix was slightly movable and that the mass in the cul-de-sac was smaller. The patient now noted that her hair was falling

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from her head, and she feared that she was going to become bald. She also noticed a tremendous increase in the hair on her legs and pubis. She now weighed 115 pounds (52 Kg.). On April 27 the liver measured 12 cm. at the midclavicular line and the epigastric mass had increased in size. The dose of testosterone propionate was increased to 400 mg. a week given intramuscularly. Visible peristalsis was observed at this examination.

On May 10 the patient weighed 119 pounds (54 Kg.). Her usual weight was 110 pounds (50 Kg.). Her appetite was enormous. Another nodule had appeared on the liver, and it was noted that the cervix had become as soft as the cervix of pregnancy and that it was freely movable. The mass and shelf previously described were now barely palpable. The patient had received 5,600 mg. of testosterone propionate by the intramuscular route, and her main complaint about it was that her voice was so weak she could not call her children or talk on the telephone.

The patient had had constant trouble with her bowels since leaving the hospital three and one-half months previously. She had periods of constipation for several days, which were relieved by small doses of magnesia magma, liquid petrolatum and enemas.

On examination on May 25, two more small nodules were felt in the liver. The cervix was even softer than at the last examination and was freely movable, and the examining finger could be swept completely around the cervix without encountering the mass or shelf previously described. It seemed that the pelvic mass was diminishing in size but that the liver was increasing in size.

On June 14 the patient had had crampy abdominal pains and no bowel movement for six days. A barium sulfate enema revealed an obstruction just above the rectosigmoid, at which point there was total obstruction to the ascending flow of the barium mixture. The patient had received 8,100 mg. of testosterone propionate, and her main complaint concerning it was the weakness of her voice. With diligent nursing care the patient's intestinal tract was emptied. She went on two weeks' vacation away from home by herself and received no attention except the intramuscular injections of testosterone propionate. By August 2 the patient had received 10,000 mg. of testosterone propionate by the intramuscular route. Her liver measured 19 cm. at the midclavicular line; the masses in the liver had coalesced and many small new ones had appeared. The examination of August 14 revealed that the masses in the liver were rapidly increasing in size. On August 25 the patient had complete obstruction. She was sent to the hospital again for terminal care.

The report of September 10 revealed that the patient had had no stool for two and one-half weeks. The abdomen was extremely distended. Her spirits remained high, and she enjoyed her food. Results of repeated enemas were unsuccessful. Because she was not becoming worse as patients usually do at this time, it was decided to do an exploratory laparotomy in an attempt to relieve the obstruction. Operation was performed on September 12. It was not possible to relieve the obstruction. The patient died five hours after the operation.

The total dose of testosterone propionate by the intramuscular route in this case was 14,100 mg. given over a period of nine and one-half months.

POSTMORTEM OBSERVATIONS

Dr. Frank Inda did the postmortem examination.

Gross Pathologic Observations.—The liver weighed 3,000 Gm. The capsular surface showed multiple umbilicated nodules varying in size from 1 to 6 cm. Repeated sections showed massive areas of tumor replacement up to 10 cm. in diameter. Gastrointestinal tract: The serosal surface of the bowel was glistening and failed to show any implants except in the region of the obstruction in the rectosigmoid.

Microscopic Observations.—A metastatic papillary adenocarcinoma was found in the liver and a metastatic carcinoma (miliary lymphatic spread) of the lung, with peripheral atelectasis. Foreign material was aspirated. Examination of the lymph nodes showed metastatic papillary adenocarcinoma. In the gastrointestinal tract there were adenocarcinomatous implants with infiltration of the rectosigmoid. Reticulum cell hyperplasia was observed in the spleen.

SUMMARY

A case of papillary cystadenocarcinoma of the ovary is presented which was treated surgically and with very large doses of testosterone propionate. After the testosterone propionate therapy was started, at which time the condition was considered terminal, the patient enjoyed nine months of vigorous life. She had greater energy and a better appetite than at any other time in her life. Her chief complaint against the testosterone propionate therapy was the weakness of her voice. The trouble with her water balance was thought to be due to the large doses of testosterone propionate, but this was easily handled. The masses in the pelvis and lower part of the abdomen seemed to recede, while the metastases in the liver steadily increased in size.

ADDENDUM.—Pelvic examination of the patient on April 27, 1948, revealed a decrease in the size of the mass in the left adnexal region extending toward the sigmoid.

ACTIVE PULMONARY TUBERCULOSIS TOGETHER WITH ADDISON'S DISEASE

Successfully Treated with Streptomycin and Adrenal Cortex Extract

MARSHALL C. CHENEY, M.D.
Berkeley, Calif.

Case histories of dramatic recovery from active pulmonary tuberculosis as a result of treatment with streptomycin still are rare enough to warrant reporting. Also, in this case Addison's disease had set in and the patient was rapidly becoming worse. Since Addison's disease is so uniformly fatal, possibility of cure by means of streptomycin represents an important gain in the means of defense against this devastating disease.

Reading over the various reports on all types of tuberculosis treated with streptomycin, one notes the extremely cautious conclusions, such as "Streptomycin should be reserved in pulmonary tuberculosis only for patients not doing well on the regular (slow-going) sanatorium regimen of rest, lung deflation and the like." It is evident that much wider study of streptomycin alone and streptomycin in combination with other remedies (para-aminosalicylic acid, "promin" [sodium p,-p'-diaminodiphenylsulfone-N,N'didextrose sulfonate]) is needed before conclusions can be drawn.

My patient was treated successfully at home, after failure of sanatorium care and after the case had been regarded as hopeless. The newer remedies raise the question, "Is the treatment of tuberculosis in the future to be at home rather than the prolonged old style sanatorium care?"

Admitting that all patients do not respond favorably to streptomycin and that some have had toxic damage (at least from the old high dosage treatment without protection of the nerve structures by thiamine), the unbelievable improvement in this patient, after being regarded as incurable, makes it fair to question the generally accepted conclusion of tuberculosis specialists that streptomycin should be reserved for tuberculosis that is not responding well to the old regimen. Obviously, this patient could have been saved over a year of sanatorium care and from approaching death had streptomycin been administered at the outset. Should not every case of active tuberculosis have a trial of streptomycin therapy first?

REPORT OF A CASE

The patient, a young girl aged 22, was sent to me in August 1946 because she had been coughing a great deal, especially at night, for the previous two months. The girl reported that there had been considerable sputum at first, but much less at the time of examination.

The roentgenogram of the lungs showed active tuberculosis of the upper lobe of the left lung, with a thick-walled cavity, 3 cm. in diameter. The remainder of the lungs was normal. The sputum contained numerous acid-fast bacilli. In spite of the observations, the girl appeared in excellent condition, was well nourished and was not feeling sick, though she felt tired, apparently from the intensive course she was taking at a local business school.

Checkup on the family (father, mother, brother), including roentgenograms of the chest, showed all in good health, without a trace of tuberculosis.

The girl was sent immediately to a lung specialist in San Francisco, Dr. Sidney J. Shipman, who placed her in Ross Sanitorium in Marin County, Calif. Routine rest was started; the left lung was partially collapsed by pneumothorax, but adhesions prevented a complete result. On this account, a series of operations was started, to cut the adhesions.

During the winter of 1946, and especially in the spring of 1947, the reports from the sanatorium were not good. In spite of sanatorium care, the tuberculous infection not only continued active in the left lung, but also appeared in the right lung.

In addition to the spread of the tuberculous process to the right lung, some disturbing digestive symptoms had appeared and were interfering with eating and hence maintenance of a good weight. The digestive upsets (intense nausea and vomiting and, later, pain) at first came at the onset of the menstrual period and gradually lasted longer, until the patient was eating almost nothing for as long as six or seven days at a time, often vomiting the blandest foods.

There was a peculiar nervousness along with the digestive upsets, which led to the idea that there might be a purely psychic factor associated with sanatorium life. However, a visit home (spring and summer, 1947) under her mother's supervision did not influence the digestive upsets, which began to appear even without reference to the catamenia.

The patient lost more weight during the summer, finally could not take any milk and frequently vomited her meals, no matter how small the amount or how carefully selected. Her weight gradually dropped from about 135 pounds (61 Kg.) to 98 pounds (45 Kg.), and it became evident that unless the digestive difficulty, as well as the advancing tuberculosis in the lungs, could be stopped, she could not recover.

She was sent home again from the sanatorium but was soon admitted to St. Joseph's Hospital in San Francisco for review of the tubercular condition. Feeling that the infection had gotten into the abdomen, and because of the close association of the digestive upsets with the catamenia, a gynecologist, Dr. Cooley, was called into consultation. He examined the pelvis and found no definite tuberculosis of the pelvic organs.

Again she was sent home with instructions to spare no effort to solve the digestive difficulty. Feeling that tuberculous ulceration of the bowel might be causing the serious symptoms, she was placed in Alta Bates Hospital in Berkeley for gastrointestinal examination, partial obstruction of the bowel being carefully looked for. No evidence of tuberculosis of the bowel could be found at any point and no signs of obstruction, except some spasm in the second portion of the duodenum which seemed to hold food back somewhat. A surgeon, Dr. Dexter Richards, was called into consultation and, observing the flat abdomen and so little evidence of organic obstruction, advised against any surgical treatment.

Again the patient was sent home, but review of all the possibilities now suggested that Addison's disease was a factor in the case. There was no question about her having tuberculosis, at least in the lungs. The digestive upsets were consistent with Addison's disease, and the nervousness was exactly of the type described as occurring in this illness. In addition, she was having exhaustion spells in which she suddenly felt as if she were dying. The systolic blood pressure was ranging from 110 to 90. The absence of tuberculosis in the gastrointestinal tract, pelvis and kidneys aided in pointing the way to tuberculous involvement of the adrenal glands. However, no calcification was evident in roentgenograms of the adrenal areas.

Treatment with injection of adrenal cortex extract ("eschatin") and with streptomycin was begun. Improvement was evident within a week; the digestive upsets gradually lessened, and the diet was normal by the time the three months' streptomycin therapy was complete. Treatment was started with the original full dose of streptomycin, i. e., 1 Gm. a day, in divided doses at the beginning, and the dose cut to 0.5 Gm. a day during the latter part of the three months' treatment, because of general agreement that the smaller dose would be just as effective for the tuberculosis and much less likely to cause toxic symptoms. This patient displayed no toxic symptoms even on full dosage (possibly due to large doses of vitamin B), but she was so emaciated that it was extremely difficult to find sufficient sites for the injections.

All injections were administered by the patient's mother. Not one injection was missed, and much effort was put into selection and preparation of foods that might possibly agree. As the girl's appetite improved and she began to gain weight, extra effort was put into the supplementary feeding.

By the spring of 1948, it was evident that a cure had been accomplished. The roentgenograms of the lungs now showed no activity of the tuberculosis, the cavity had disappeared and there was no activity found on the weekly check-ups by the lung specialists in San Francisco. Pneumothorax of the left lung and bed rest were continued, though the patient's strength had returned. Finally, the time up and about during the late spring and summer, i. e., from one or two hours to four or more hours, were gradually increased. Some of this time was spent outdoors in sunlight, which was permitted because she felt better after sunning herself. Also, a sun lamp was used all through the winter and early spring.

Her weight by summer was up 34 pounds (15 Kg.), and she was tanned, active and in good health. Interest in normal girls' social pursuits returned. All symptoms of her sickness had disappeared. The only remedies now were some capsules of cortical adrenal hormone (now replacing the injections of adrenal cortex extract) and some vitamin tablets. She spent the summer at an altitude (Tahoe) and in September 1948 reported herself in good condition. The periodic reviews by the lung specialists support the idea that the tuberculosis has been eradicated.

Close observation will continue at least another year. Meanwhile, the lung specialist permits the cautious diagnosis, "presumably arrested tuberculosis," at the same time recognizing the miraculous improvement.

NOTE: At the time of last examination (Jan. 7, 1949) the patient was in excellent condition. Roentgenograms revealed no active tuberculosis of the lungs. Periodic examinations (every two weeks) by Dr. Shipman have revealed no activity.

The Salpêtrière. — The greatest neurologist of all time, Charcot's name will always be associated with his old hospital in Paris, the Salpêtrière. The hospital got its queer name from the fact that it once served as an arsenal and thus became a center for the storage of saltpeter, the essential ingredient of gunpowder. Sometime in the 17th Century it was converted into an asylum for old women and later, after Pinel's time, into a hospital for the mentally disturbed, epileptics and patients with a wide variety of nervous diseases. To this hospital in 1848 came the young Charcot as a medical student, the son of a professional carriage builder who had considerable artistic talent, an inheritance that became well marked in his famous son. . . . After four years of internship at the Salpêtrière, Charcot practiced medicine for a few years before returning in 1862 to his old hospital as one of the chiefs of medical service. . . . His crowning achievement in neuropathology was his studies in cerebral localization. . . . His name is remembered in the artery of Charcot, Charcot's disease, amyotrophic lateral sclerosis and the changes in the joints in tabes dorsalis. . . . He was, indeed, the founder of modern neurology and his studies in cerebral localization led directly to the development of neurosurgery.—Henry R. Viets, The History of Neurology in the Last One Hundred Years, *Bulletin of the New York Academy of Medicine*, December 1948.

Council on Physical Medicine

REPORTS OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following reports: HOWARD A. CARTER, *Secretary.*

GENERAL ELECTRIC MODEL H PRESCRIPTION ULTRAVIOLET LAMP ACCEPTABLE

Manufacturer: General Electric X-Ray Corporation, 4855 W. McGeoch Avenue, Milwaukee 14.

The General Electric Model H Prescription Ultraviolet Lamp is a device for the therapeutic administration of ultraviolet radiation, and includes not only the burner itself but also a housing with reflector and shutter, an adjustable "floating arm" and an upright stand borne on four casters.

The lamp proper is of the high pressure mercury vapor hot-quartz Uviarc type which emits a spectrum rich in wavelengths throughout the therapeutic zone of ultraviolet from 2,200 to 3,200 angstrom units. It requires 110 to 120 volts of alternating current for operation. The Model H Type 1 lamp has a 360 watt burner, and the lamp itself operates on 115 volt 60 cycle and draws 9 amperes and 1040 watts. The Model H Type 2 lamp has a 250 watt burner and can be supplied to operate from either 115 volt 60 cycle, drawing 7.7 amperes and 900 watts, or 115 volt 25 cycle, drawing 9.9 amperes and 1,100 watts.

G. E. Model H Prescription Ultraviolet Lamp.

The height of the apparatus as a whole is given as 154 cm. (60½ inches) and the width as 42 cm. (16½ inches). The weight is 24 Kg. (52 pounds). The shipping weight is 39 Kg. (85 pounds). Accessories include two pairs of goggles for protection against ultraviolet light.

In a test it was found that the minimum erythemal dosage averaged 75 to 90 seconds at 18 inches (45.7 cm.) from the Model H Type 2 250-watt lamp. The Model H Type 1 360-watt lamp will produce the same reaction in 50 to 65 seconds.

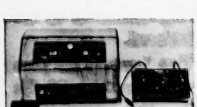
Evidence was obtained from sources acceptable to the Council that the lamp complies with the minimum requirements for acceptance both in spectral quality and total intensity, that its clinical performance was as claimed and that the lamp was convenient to move and operate.

The Council on Physical Medicine voted to include the General Electric Model H Prescription Ultraviolet Lamp in its list of accepted devices.

SONOTONE AUDIOMETER, MODEL 21, ACCEPTABLE

Manufacturer: Sonotone Corporation, Elmsford, N. Y.

The Sonotone Audiometer, Model 21, is an instrument designed to test the sense of hearing by supplying pure tones at frequencies from 125 to 8,192 cycles per second at various degrees of loudness. It is contained in a walnut-finished case 27 by 28 by 48 cm. (10½ by 11⅛ by 19 inches). Accessories include: 2 air conduction receivers and cords; 1 bone conduction receiver and cord; 1 control unit, with switching arrangements to allow testing with a receiver on each ear; 1 microphone and cord; 1 single headband; 1 double headband; 1 power cord, and 1 signal switch and cord.



Sonotone Audiometer, Model 21

Without the accessories, the audiometer weighs 10.9 Kg. (24 pounds). With them, it weighs 14 Kg. (31 pounds), and the shipping weight is 30 Kg. (66 pounds). Its power consumption is 50 watts (0.4 ampere) at 115 volts; it operates on either direct or alternating current.

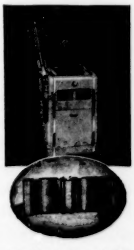
It was tested under clinical conditions in a laboratory acceptable to the Council, and was reported to be reliable and durable.

The Council on Physical Medicine voted to include the Sonotone Audiometer, Model 21, in its list of accepted devices.

FISCHER DELUXE SHORT WAVE DIATHERMY MODEL 400 ACCEPTABLE

Manufacturer: H. G. Fischer and Company, 9451 West Belmont Avenue, Franklin Park, Ill.

The Fischer DeLuxe Short Wave Diathermy Unit, Model 400, is an apparatus designed to administer diathermy within the wave bands allocated by the Federal Communications Commission (Type Approval D-479, 11.06 meters, 27.120 megacycles) by induction electrode and induction cable. It can also be used for coagulation and cutting in electrosurgical procedures. The apparatus as a whole is in the form of a console or cabinet mounted on four casters and stands 86 cm. high (34 inches). The other dimensions are 86 by 51 cm. (34 by 20 inches), and the weight is 47 Kg. (103 pounds). The shipping weight is 78 Kg. (167 pounds). Accessories include a flexible arm assembly and an adjustable induction electrode. For operation, a 120 volt alternating current is needed, and 900 watts are drawn.



Fischer De Luxe S. W. Dia. Unit, Model 400.

The apparatus has been accepted for listing by Underwriters' Laboratories, Inc. Measurements of power output were made by the lamp load method in a laboratory acceptable to the Council, and the highest figure obtained was 310 watts.

The Council on Physical Medicine voted to include the Fischer DeLuxe Short Wave Diathermy Model 400 in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

PROTEIN HYDROLYSATES (See New and Nonofficial Remedies 1948, p. 416).

The following dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Solution Aminosol 5% W/V: 500 cc. and 1,000 cc. infusion solution containers. A modified fibrin hydrolysate 5 per cent. Each 100 cc. represents 5 Gm. of protein equivalent to about 20 calories.

Solution Aminosol 5% W/V with Dextrose U.S.P. 5% W/V: 500 cc. and 1,000 cc. infusion solution containers. A modified fibrin hydrolysate 5 per cent with dextrose 5 per cent. Each 100 cc. represents 5 Gm. of protein and 5 Gm. carbohydrate equivalent to about 40 calories.

Solution Aminosol 5% W/V with Dextrose U.S.P. 5% W/V and Sodium Chloride 0.3%: 1,000 cc. infusion solution containers. A modified fibrin hydrolysate 5 per cent with dextrose 5 per cent and sodium chloride 0.3 per cent. Each 100 cc. represents 5 Gm. of protein and 5 Gm. of carbohydrate equivalent to about 40 calories.

MERCUROPHYLLINE INJECTION-U.S.P. (See New and Nonofficial Remedies 1948, p. 319).

The following dosage form has been accepted:

THE SMITH-DORSEY COMPANY, LINCOLN, NEB.

Solution Mercurophylline: 1 cc. and 2 cc. ampuls.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 16, 1949

INDEXES AND ABSTRACTS OF MEDICAL LITERATURE

Since the end of World War II attention has been focused on the potential development of an index to the medical literature of the world sufficiently comprehensive to serve the needs of investigators, teachers, practicing physicians and all others interested in medical science. Apparently the scientific literature of the world includes some 25,000 publications; certainly there are some 6,000 of these containing material of pertinent interest to the medical profession.

The Index Medicus has been published by the American Medical Association under the title of the Quarterly Cumulative Index Medicus for many years. Recently its appearance has been delayed because of difficulties with the printing trades, difficulties in securing medical periodicals from all over the world and the maintenance of a system of selection which would supply all that is important to the various groups that have been mentioned. Under the auspices of the Division of Medical Sciences of the National Research Council a committee has been established which is now investigating every aspect of the indexing problem. Its ultimate goal may well be the publication of an index once each month of the important medical literature of the world in a form suitable to the types of readers mentioned, other users and also to librarians. The publication of a complete index to all medical literature that might be useful for all these groups would represent a cost so great that support for it is at present not visible. The committee is considering the needs of various groups and endeavoring to arrive at recommendations which will lead to progress.

In 1947 the British Medical Association began publication of two periodicals devoted to abstracts of medicine and to surgery, obstetrics and gynecology; it is considering other publications to supplement these two publications. An attempt is not made to abstract all articles published in all medical journals. A selection is made of periodicals considered worthy of study—approximately 1,000—and from these are chosen for abstract articles judged to be useful to medical readers.

In 1947 the government of the Netherlands subsidized the publication of a monthly abstracting service of articles from every available medical journal in the world under the title *Excerpta Medica*. This is published in fifteen sections and covers the whole field of clinical and experimental medicine. Many hundreds of abstracters throughout the world cooperate in this project. The organization, which is under the general editorship of M. W. Woerdeman, professor of anatomy and embryology at the University of Amsterdam, is growing in scope. Already many of the sections are in process of developing their third volume. Recently the *Excerpta Medica* was reorganized on a not for profit basis; a conference to be held by UNESCO in June will determine the extent to which that agency can support a further development of the various abstract services now available. At present physicians will find the *Excerpta Medica* the most comprehensive and prompt abstracting of the medical literature of the world thus far available.

Information indicates that German publishers are considering the possibility of reviving the *Zentralblätter* and similar abstracting services in German which were published previously to the war.

In the United States the current medical literature department of The Journal makes available numerous abstracts each week. The specialized periodicals of the American Medical Association and several others devoted wholly to abstracts of medical literature are also available for subscription by American readers. The International Abstract of Surgery, which appears monthly in *Surgery, Gynecology and Obstetrics,* is also one of the most comprehensive and useful abstract services for use by surgeons.

Obviously great sums of money are being spent by many different agencies in an effort to reach a much needed goal. Perhaps under the leadership of the World Medical Association, the World Health Organization or UNESCO, or by a combined committee developed from all of these groups, some coordination may be secured which would lead to a more comprehensive product than is now in sight. The American Medical Association is participating in these conferences, since the Association is represented in all the world groups that have been mentioned.

More recently the Editor of The Journal has been associated by action of the Board of Trustees with the publication of *Excerpta Medica*. This association is designed to bring about a system of the type so badly needed. Particularly in view is a possible coordination between abstracting services and indexing. As soon as the publication of the Quarterly Cumulative Index Medicus is brought up to date, the editors hope to indicate in the Index the references to abstracts that

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will be easily available in *Excerpta Medica*. This should enhance the value of both the Index and *Excerpta Medica*.

Medical periodicals exist by the support of physicians and medical institutions. The publication of the Index Medicus has been carried on by the American Medical Association for many years with a considerable contribution from the funds of the Association. *Excerpta Medica* likewise is still published at a loss which could be largely overcome if enough physicians gave their support either to the total publication or to the individual sections in which they happen to be interested. Since medical progress is dependent on the rapid dissemination of medical information, this important publication merits support.

LICENSURE OF FOREIGN MEDICAL GRADUATES

The statement issued by the Committee on Foreign Medical Credentials which appears elsewhere in this issue offers a statesmanlike approach to the problems involved in the licensing of foreign-trained physicians. The Committee, which is an unofficial body sponsored by the Council on Medical Education and Hospitals and composed of invited representatives from a number of organizations, has summarized the principal problems and has presented recommendations as to how they may be solved.

The quality of education a physician receives during his medical school years is as important in determining his fitness to practice medicine as is his performance on licensure examinations. These, of necessity, are limited in the extent to which they can test his knowledge and skill. In licensing graduates of American and Canadian medical schools, the state licensing boards for many years have had the benefit of the findings of thorough periodic surveys of these schools carried out by the Council and the Association of American Medical Colleges. It has been beyond the resources of these bodies to make similar studies of the medical schools in other parts of the world. Other agencies have not been discovered which can furnish adequate information. Many state boards, therefore, have been reluctant to admit foreign-trained physicians to examinations. This reluctance has been justified because medical education in many foreign countries has been inferior to medical education in this country. In many of the countries that previously maintained high standards, medical education has deteriorated during the past fifteen to twenty years as the result of political upheavals, the crushing impact of the war and the unsettled economic and political conditions that have prevailed since the close of the war.

The Committee has drawn attention to these problems but has also recognized that in some foreign countries high standards of medical education comparable to those in the United States have been maintained. The Committee therefore has stated that the various agencies concerned with the problem should unite their resources and devise a satisfactory method for securing reliable information concerning foreign medical schools at the earliest possible date. When such information is obtained, it should be possible for the accrediting agencies to prepare a list of foreign medical schools whose graduates may be considered to have received training comparable to that offered by medical schools in this country. It would then seem reasonable that the state boards and the National Board of Medical Examiners admit graduates of these schools to examinations, provided they can demonstrate sufficient familiarity with recent scientific advances, with the practices and custom of American medicine and with the English language. The Council on Medical Education and Hospitals will probably give major consideration to this suggestion at its next meeting.

The Committee is to be congratulated on the statement which it has prepared. This statement should receive wide attention from the public as well as the state licensing boards. Undoubtedly it will prove to be an extremely useful instrument for promoting better understanding and better management of a problem that demands an intelligent and enlightened solution.

SALARY MINIMUMS FOR PUBLIC HEALTH PHYSICIANS

The Executive Board of the American Public Health Association [1] has recently released a statement of recommendations of minimum salary scales for physicians in full time public health work. Five salary grades are recommended:

1. Physicians employed in a full time position for training in public health should receive an annual salary of at least $6,000 if they have an M.D. degree from a recognized medical school, have completed an internship and are eligible for licensure in the state in which they work.

2. Physicians employed in a full time position as a clinician, health officer of a small unit, or an assistant administrator, should receive an annual salary of at least $8,500 if they have the following basic qualifications:

(*a*) A degree of Doctor of Medicine from a recognized medical school.

(*b*) One year of internship and eligibility for licensure.

(*c*) A master's degree in public health (which includes some field experience) or demonstrated knowledge and experience equivalent to that represented by this degree.

3. Physicians with these basic qualifications who in their past experience have shown administrative ability should receive an annual salary of at least $10,000 if they carry the responsibility for administering a single program in a state health agency or a large local health agency (e. g., program for cancer control, mental hygiene, tuberculosis or crippled children) or serve as health officer of a moderate-sized local health unit, or carry equivalent responsibility.

1. Clearing House on Public Health Salary Information, editorial, Am. J. Pub. Health **39**: 376 (March) 1949.

4. Physicians with the basic qualifications and demonstrated ability to administer responsible public health programs should receive an annual salary of at least $12,000 if they carry heavy responsibility such as administering multiple programs in a state health agency (e. g., directors of local health administration preventable disease control), or serve as health officer of a large local health unit or carry equivalent responsibility.

5. Physicans with these basic qualifications and outstanding demonstrated ability to administer public health programs should receive an annual salary of at least $15,000 to $20,000 if they carry great responsibility in positions such as the health officers and deputies of our states, major cities and very large local units carry.

An acute shortage of personnel now exists, partly due, no doubt, to the low salaries paid to public health officials in comparison with net income received by most general physicians. A survey by the Placement Service of the American Public Health Association showed on Oct. 1, 1948: 766 vacant positions listed in contrast to 91 applicants for these positions. One recent study [2] has demonstrated that $9,819 in 1948 is only the equivalent of $5,000 in 1939 in purchasing power for a family of four. Salaries of public health personnel have not increased proportionately to wages in other fields. Wages in manufacturing industries increased by 100 to 140 per cent between 1940 and 1948. The median salary of full time public health physicians in state agencies in 1948 was $6,000 to $6,400. This is much lower than net incomes of most general practitioners in the United States.

Emphasis on the importance of public health programs, and the scope and activities of public health physicians, have greatly increased during the past ten years. A specialty board, The American Board of Preventive Medicine and Public Health, has been recently established, thus giving recognition to physicians in public health similar to that for specialists in other fields of medicine.

The undoubted importance of the work of public health physicians to the health of the people of the United States while recognized theoretically has never been adequately compensated. The outstanding reason for this is, of course, that such work is essentially impersonal, concerned not with individuals but with people in the mass and with environmental and social conditions as causes of disease. An extremely significant part of the present high level of health of the American people is due to outstanding successes in the preventive approach to disease by workers in public health.

Salary levels on which these physicians are now compensated are disgracefully low. Immediate advancement to levels at least proportionate to incomes of other medical specialists is essential to prevent further losses of trained and efficient personnel.

2. Where Buying Power Goes Up, U. S. News & World Rep. 25:19 (Aug. 13) 1948.

THE "MOORE" AMENDMENT TO THE FOOD, DRUG AND COSMETIC ACT

An amendment, known as the "Moore" amendment, has been proposed to modify the Federal Food, Drug and Cosmetic Act. If it is enacted, proof of wilful intent or gross negligence would be required before a criminal conviction for violation of the Federal Food, Drug and Cosmetic Act could be obtained. Under the Act adulteration or misbranding of any food, drug, device or cosmetic is a misdemeanor punishable by fines or even imprisonment. If intent to defraud can be proved, the penalty is more severe. Requirement of proof of intent as proposed by the "Moore" amendment would, no doubt, make effective enforcement difficult, if not impossible.

The manufacture and distribution of drugs in the United States is a major industry which affects the health of the people. In general, the drugs in this country are the best in the world; they provide a persuasive example of what can be accomplished in a country where incentive, competition and freedom are dominant motivations. Any proposal that would seriously change existing practices, therefore, should be studied carefully for fear that it might lower the present high standards to those of even a decade ago.

The Federal Food, Drug and Cosmetic Act, like other public protective laws, including traffic laws, does not require proof of negligence or intent as an element of a violation. The purpose of such statutes is the achievement of social betterment rather than the punishment of crimes. The provision in the federal drug law for criminal penalties against traffic in adulterated or misbranded drugs without proof of wilful intent or criminal negligence is simply indicative that the chief concern of the physician and his patient is the quality of the drug. Whether or not the vendor of a harmful or impotent drug was conscious or unconscious of the violation is not a medical or health problem.

The law places on the drug manufacturer the obligation of determining that his drugs are both safe and efficacious before he vends them. Food and drug legislation from its beginning has stemmed from the unusual responsibility held by those who produce and handle such essentials as foods and drugs. The significance of this is obvious when the history of an amendment to the Food and Drugs Act of 1906 is reviewed: This amendment (known as the Sherley Amendment of 1912) required proof of fraud or wilful intent in cases against false claims of therapeutic effect on labels. Because of the extreme difficulty of proving the state of mind of the manufacturer, only after deletion of the requirement of proof of fraud in writing the present law, enacted in 1938, were the more evil influences brought under reasonable control.

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When a violation occurs, the Act requires an administrative hearing preliminary to criminal prosecution, at which time the defendant may attempt to show why prosecution should not be brought. Furthermore, intent has never been a condition to a violation of even the Anti-Trust law, which is generally considered the most prominent law governing commerce. The person who drives through a red light and kills a child is guilty of violation of the law, whether or not he deliberately committed the act. The same is true of the manufacturer who exercises such poor control that his products are potential lethal agents instead of being curative.

The people and the medical profession are entitled to maximum assurance that the drugs they use are safe and efficacious. What consolation can either the people or the physicians obtain after an injury or fatality has resulted directly from the use of a harmful drug or indirectly from the use of an impotent or adulterated drug if investigation indicates that the manufacturer did not wilfully ship such an article or that he was not grossly negligent? Any proposed amendment to the Federal Food, Drug and Cosmetic Act which would condone harmful practices or mitigate their penalties should not be enacted.

Current Comment

THE WISCONSIN MEDICAL BLUE BOOK

For a number of years the State Medical Society of Wisconsin has designated the January issue of its journal as the Medical Blue Book. Included are abstracts of the more important state licensure laws, articles on medicolegal subjects, discussions on operations to produce sterility, the relation of the physician to the workmen's compensation act, suggestions as to the content of leases for office space entered into by physicians, laws relating to the collection of accounts, malpractice, income tax requirements, the medical witness and expert testimony and a wide variety of other subjects. This year the Blue Book has been published as a permanent volume, containing information similar to that previously in the regular January issues of the journal. Such issues will hereafter be utilized as a supplement to the permanent volume, adding new information and bringing up to date the information contained in that volume. Members of the state society should find this a most valuable service. Complimentary copies of this publication have been sent by the state society to all junior and senior medical students in the two medical schools in Wisconsin. Other medical associations might well consider the desirability of making available a similar publication to their members. The Indiana State Medical Association initiated such a project in 1948. More recently the Florida Academy of Public Medicine has prepared for transmittal to members of the state medical association a brief summary of the licensure laws and contemplates extending this summary to include other matters of medicolegal significance.

CONTROL OF RABIES

A conference on rabies involving New Jersey, Pennsylvania and New York was held recently.[1] Dr. Bishop, speaking for Pennsylvania, stated that prevention, control and eradication of rabies in animals are under the jurisdiction of the Bureau of Animal Industry with veterinary practitioners primarily responsible for reporting. Laboratory examination of suspected rabies specimens is made without charge. In cases in which a microscopic examination of the brain proved negative and there was no history of exposure to human beings, the brain examination was regarded as final. When a definite history of human exposure exists, the animal inoculation test is made. Dr. Robert F. Korns, director of the Bureau of Epidemiology and Communicable Disease Control of the New York State Department of Health, pointed out that the problem of rabies control in New York State has become one of fox control rather than dog control, since the former animal is now the chief vector. Dr. Alexander Zeissig expressed the belief that at least 15 per cent of positive cases of rabies would be missed if the inoculation test were not used. Dr. James H. Steele indicated that the existence of the disease was established after two blind passages in white mice after failure to discover Negri bodies. The disease in these cases did not appear until the twenty-eighth or the twenty-ninth day, a fact indicating that the incubation period is longer than the twenty-one days generally accepted. A case of rabies has not thus far been established in rats. In New York State, control of the dog has become secondary to vaccination as a control measure, and the chief reliance is now on vaccination. When a rabid animal is reported in an area, that area is immediately quarantined and the vaccination program is instituted. The objective of mass vaccination is the building of a high percentage of immune animals in the dog population so that both dogs and human beings are protected against the rabid animals. Dr. Korns cited four measures necessary to an effective rabies control program: (1) as good a dog management program as one can get; (2) mass vaccination; (3) rabies advisory councils, and (4) a planned educational program. At present New York State's control efforts to reduce rabies in wild life, in which the fox appears to be the primary vector, consist of utilizing professional trappers to reduce the fox population in areas as large as 50 square miles, with the idea of creating adjoining zones of scarcity that act as buffers against extension of the disease. During an eight month period, twenty-seven professional trappers took 4,000 foxes from three controlled areas. Rabies in the fox is a disease of population peaks, rabies being a natural biologic control that reduces their numbers. The reduction of animals of New York seems best accomplished by utilizing professional trappers for a ten month period. The usual period in which a rabid dog may bite a person or another animal runs from three to five days. Rabid cattle are generally not vicious and are not important as transmitters of rabies, the chief importance being economic loss.

1. Résumé of Interstate Conference on Rabies Control, State of New York Joint Legislative Committee on Interstate Cooperation, Hotel Roosevelt, New York City, Dec. 15, 1948.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 11, 1949.

Investigation of Drug Prices Asked

Peoples Lobby, Inc., one of the oldest organizations of its kind in the National Capital, has requested President Truman to order a Federal Trade Commission investigation of retail prices of medicines, vitamins and surgical instruments and equipment. Benjamin C. Marsh, secretary of People's Lobby, Inc., wrote the President: "It is obvious that the full health program you are urging will not be enacted into law at this session of Congress, and also that your program should be modified. Much of the medical and dental care and treatment you advocate must be furnished by government, partly the federal government, since those who most need medicine and care cannot afford to pay for it. We earnestly request, therefore, that you have the Federal Trade Commission investigate prices of medicines and vitamins and ascertain whether there is any collusion in price setting to account for present price levels, far beyond the reach of many patients."

Federal Aid to Education Attacked as Unwise

The Council of State Chambers of Commerce, with headquarters in Washington, issued a statement on April 8 opposing Congressional enactment of legislation for financial aid to education, including subsidization of medical schools. Although S. 246, the $300,000,000 aid bill which has been favorably reported to the Senate, was singled out for attack, the Council's criticism is applicable as well to pending bills which would authorize federal support of medical, dental and nursing education.

"It seems that the pressure groups having a vested interest in the spending of this federal school aid money have become a bit alarmed at the prospect that the people in the forty-eight states might be told about how much they would pay as well as receive under the proposed aid bill," the Council stated. "So they have begun to protest in advance. They refer to it as a 'transparent' argument. But we believe the American people won't be fooled again. Particularly right now, when the spenders in Washington are urging new taxes to balance a bloated Federal budget."

Veterans Administration Reports Good Results with Hemiplegics

Physical medicine technics in treatment of hemiplegic patients are highly efficacious, according to the findings of a study conducted by the Veterans Administration hospital at Dearborn, Mich., and made public at Veterans Administration headquarters in Washington. Of 48 patients reported on and who underwent treatment since Jan. 1, 1948, 30 have been discharged to their homes, 2 sent to domiciliary homes and 1 transferred to another veterans hospital for further rehabilitation. Twelve of the 33 formerly were confined to bed and 5 were wheelchair patients. All are now able to walk. Treatment averaged ten weeks in length, with a span from one week to ten months. Duration of the hemiplegic condition before physical medicine procedures were instituted averaged ten months, with a range of one month to five years.

Dr. James A. Shannon Joins Heart Institute

Surgeon General Leonard A. Scheele, of the U. S. Public Health Service, has announced the appointment of Dr. James A. Shannon as associate director of National Heart Institute in charge of research. Dr. Shannon comes to the Institute from the Squibb Institute for Medical Research. Dr. Scheele stated that "in order to return to the field of clinical investigation, Dr. Shannon has resigned a position of outstanding importance, that of director of the Squibb Institute for Medical Research, which position he has held since April 1, 1946."

Expand Free Radioisotope Program

The U. S. Atomic Energy Commission on February 27 announced that all radioisotopes heretofore sold to qualified cancer research workers have now been placed on the free list. Previously available without charge for production costs were radioisotopes of iodine, phosphorus and sodium. The new policy adds more than 50 elements to the list, including cobalt 60, which holds promise as an eventual substitute for the more costly radium, and the radioisotopes of gold and carbon. Announcing the expansion, Dr. Shields Warren, director of the Commission's Division of Biology and Medicine, said that it is made possible through improvement of isotope production technic at Oak Ridge National Laboratory (Tennessee) and at Argonne National Laboratory, Chicago.

To finance the new program for its first year of operation, $450,000 has been allocated. Sole charge to researchers will be $10 per shipment, to cover packaging, monitoring, accounting and billing, plus cost of transportation. When request is made for synthesizing the radioisotope into a chemical compound, the recipient will be charged for the labor involved. Allocations of radioisotopes will be for the following purposes: (1) cancer studies performed with use of animals, (2) research programs on basic cellular metabolism of cancerous cells and (3) experimentation toward evaluation of therapeutic uses of radioactive materials.

Applications for radioisotopes for use in human subjects must be approved by the human applications subcommittee of the Commission's Isotope Distribution Committee. Criteria are: (1) the physician using the materials must be associated with an institution qualified for their proper use; (2) use of the radioisotopes must be approved by the institution; (3) clinical users shall be physicians in good standing with their respective medical societies and must have had previous clinical experience with radiation.

Veterans Administration Appoints Medical Directors

The following have been appointed by Veterans Administration as area medical directors, with the responsibility of supervising Veterans Administration hospital and medical activities in their respective regions of the country: Dr. Frank B. Brewer, with headquarters in Atlanta; Dr. Francis B. Carroll, Boston; Dr. Einar C. Andreassen, Fort Snelling, Minn.; Dr. Charles H. Beasley, St. Louis, and Dr. Cyril H. C. Francis, San Francisco. A sixth appointee, Dr. Delmar Goode, will be stationed at the central office in Washington as supervisor of medical department operations in the District of Columbia and vicinity. Establishment of the area medical offices results from abolition of the Veterans Administration's thirteen branch offices, each of which had its own medical director.

Dr. Pereira Betancourt Arrives for U. S. Tour

The Department of State has announced the arrival in this country of Dr. Julio Pereira Betancourt, director of the Children's Hospital at La Paz, Bolivia, whose purpose is to visit hospitals, medical schools and medical centers for the next three months. His trip has been arranged under the Department's travel grant program. A founder of the Bolivian Pediatrics Society, Dr. Pereira is professor of medicine at the University of La Paz and has had special training in children's diseases at the Children's Hospital in Buenos Aires.

Dr. Kiefer Relieves Dr. Crabtree at N. S. R. B.

Official announcement is expected in mid-April that Dr. Norvin C. Kiefer has relieved Dr. James A. Crabtree as chief of the division of medical services, National Security Resources Board. Dr. Kiefer formerly was director of the health emergency planning unit in the U. S. Public Health Service. Dr. Crabtree's new appointment will be announced later.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, Hotel Dennis, June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Colo., Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.

American Association of the History of Medicine, Lexington, Ky., May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.

American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.

American College of Radiology, Atlantic City, Chalfonte-Haddon Hall, June 5. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Secretary.

American Dermatological Association, Hot Springs, Va., May 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn. Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.

American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary

American Laryngological, Rhinological and Otological Society, Chicago, Drake Hotel, April 18-20. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.

American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Otological Society, New York, May 18-19. Dr .Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.

American Pediatric Society, Atlantic City, May 5-6. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Psychiatric Association, Montreal, Canada, May 23-27. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Radium Society, Atlantic City, June 5. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Experimental Pathology, Detroit, April 18-22. Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.

American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.

American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.

American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.

American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Britain, State Teachers' College, May 5. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Federation of American Societies for Experimental Biology, Detroit, April 18-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

Georgia, Medical Association of, Savannah, Hotel De Soto, May 10-13. Dr. Edgar D. Shanks, 478 Peachtree St., N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 5-8. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

International Congress on Rheumatic Diseases, New York, Hotel Waldorf-Astoria, May 30-June 3. Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., Chairman, American Committee.

Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.

Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, New Orleans, May 5-7. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

National Tuberculosis Association, Detroit, May 2-6. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Omaha, Hotel Paxton, May 2-5. Dr. R. B. Adams, 1315 Sharp Building, Lincoln 8, Nebraska, Secretary.

New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.

New Mexico Medical Society, Roswell, May 5-7. Dr. H. L. January, 221 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, Hotel Statler, May 2-6. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Minot, May 14-17. Dr. O. A. Sedlak, 702 First Ave. S., Fargo, Secretary.

Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S Nelson, 79 E. State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.

South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Texas, State Medical Association of, San Antonio, May 2-5. Dr. Harold Williams, 700 Guadalupe St., Austin, Secretary.

Western Association of Industrial Physicians and Surgeons, Los Angeles, Hotel Biltmore, May 7. Dr. Christopher Leggo, Crockett, Calif., Secretary.

Western Branch of American Public Health Associaiton, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

Medical Legislation

STATE LEGISLATION

Arizona

Bill Enacted.—H. 82 has become chapter 42 of the Laws of 1949. It is a rather complete **revision** and reenactment of the **medical practice act** and provides among other things for the right to make use of the injunctive process in enforcing the provisions of the act and provides further that the giving or receiving of rebates shall be construed to be within the meaning of the term "unprofesional conduct."

Arkansas

Bills Enacted.—H. 52 has become Act No. 283 of the Acts of 1949. It provides that any inhabitant of the state over the age of 21 years and of sound mind may, by an instrument in writing, dispose or make **arrangements for the disposition** to be made of his **body** or any part or organ thereof **after death,** provided the disposition of said body or parts thereof is made for the purpose of advancement of medical science or for the replacement of diseased or worn out parts of other humans or for the rehabilitation of human parts or other organs. H. 225 has become Act No. 247 of the Acts of 1949. It amends the basic science act by **exempting chiropractors** therefrom. H. 363 has become Act No. 346 of the Acts of 1949. It requires the **Committee on Admissions** of the **School of Medicine** of the University of **Arkansas** to allocate position vacancies in the school by congressional districts based on the population of each district. Applicants from counties of low population will be given priority within each congressional district when such applicants are willing to certify their intent to practice medicine upon the completion of their training in a community of two thousand people or less. H. 385 has become Act No. 302 of the Acts of 1949. It provides that the **membership on the state board of health** shall consist of nine members, seven of whom shall be chosen from the seven congressional districts of the state. Such members must be graduates of a legally constituted and reputable medical college and of at least seven years' experience in the practice of their profession and of good professional standing. These **appointments** shall be made **by the governor** from a list of not less than three names presented by the Arkansas Medical Society. S. 275 has become Act No. 258 of the Acts of 1949. It requires all physicians, surgeons, hospitals and druggists who might be called upon to render first aid treatment to report **all cases of knife wounds** treated by them to the office of the sheriff of the county.

Delaware

Bill Introduced.—H. 419 proposes to require all **persons teaching** in the **public schools** and all persons hereafter making application to teach in the public schools of the state to submit to a **psychiatric examination** before continuing or being accepted to teach.

Georgia

Bill Enacted.—H. 155 has become Governor's Act No. 245 of the Acts of 1949. It provides that any **applicant for a marriage license** must present a certificate signed by a qualified physician licensed to practice medicine and surgery in any state or United States territory stating that the applicant has been given an examination and that in the opinion of the examining physician the applicant is not infected with **syphilis** in a communicable stage.

Illinois

Bill Introduced.—H. 484 proposes to authorize the Department of Registration and Education to issue **licenses** to practice **chiropractic**, which is defined as a philosophy, science and art of things natural, a system of locating misaligned or displaced vertebrae of the human spinal column; the procedure preparatory to, and the adjustment by hand of, such misaligned or displaced vertebrae of the human body, without the use of drugs or surgery, for the correction of the cause of disease together with the use of scientific instruments for analysis. S. Res. 32 proposes a resolution opposing the enactment by the Congress of the United States of any program of **national compulsory health insurance** and proposing that the senators and representatives from Illinois be requested to oppose and vote **against** any such proposed **legislation**. S. 223. to amend the law relating to **prenatal examination tests** by physicians, proposes to require also a standard serological test for the Rh factor.

Iowa

Bill Enacted.—H. 300 was approved March 30, 1949. It provides regulations for the licensing of practical nurses.

Kansas

Bill Introduced.—H. 420 proposes the enactment of a food, drug and **cosmetic act** providing among other things, that any **drug sold at retail** containing any quantity of aminopyrine, barbituric acid, pituitary, thyroid, sulphonmethane or their derivatives shall be sold only on the **written prescription** of a physician, dentist or veterinarian licensed by law to administer such drug.

Minnesota

Bill Enacted.—H. 183 has become chapter 160 of the Laws of 1949. It authorizes persons to **dispose of their bodies** in whole or in part **by will** to a teaching institution, university, college, state board of public health or legally licensed hospital, either for use as such institution, university, college or hospital may see fit, or for use as expressly designated in the will. S. 834 has become chapter 195 of the Laws of 1949. It authorizes the state **live stock sanitary board** to license institutions desiring to obtain impounded animals for purposes of scientific investigation.

Montana

Bill Enacted.—H. 285 has become Chapter 172 of the Laws of 1949. It authorizes autopsies or **postmortem examinations** upon dead bodies in cases where dissection, autopsy or postmortem examination is directed or authorized by the last will and testament of the deceased and in cases where the husband, wife or next of kin shall in writing authorize dissection, autopsy or postmortem examination for the purpose of ascertaining the cause of death. All dissections, autopsies or postmortem examinations involving dissection of any part of the human body shall be performed by a physician or surgeon duly licensed to practice such profession by the state board of medical examiners and upon completion of such examination the physician shall deliver a written report thereof together with his findings as to the cause of death to the next of kin of the decedent or the representative of the decedent's estate or to other persons lawfully requesting such procedures.

New Hampshire

Bill Enacted.—H. 246 has become chapter 102 of the Laws of 1949. It authorizes the **state board of health** to purchase **antitoxins**, other serums, vaccines and immunizing agents when it deems it advisable in the interest of public health and to make rules and regulations for the **free distribution** of such biologicals.

New Jersey

Bills Introduced.—A. 447 proposes the creation of a state board of **examiners in medical technology** which is defined to mean the science or technic of performing laboratory tests, investigations, analyses or examinations of any fluid, excretion or secretion of the human body, or of any organism contained therein for the use of any licensed member of the healing arts in the course of his practice. Two members of the board would be required to be pathologists. A. 511 proposes to authorize a **local** board of health to **quarantine** any person afflicted with **tuberculosis** of the lungs in a communicable form diagnosed as such by a licensed physician after examination by x-ray or finding of tubercle bacilli in the sputum or gastric washings. S. J. R. 6 proposes the establishment of a temporary committee to be charged with the duty of investigating or causing to be investigated and of studying and evaluating present facilities and resources and future needs for the prevention, care, treatment and rehabilitation of **the chronic sick** in the state.

New Mexico

Bills Enacted.—H. 147 has become chapter 139 of the Laws of 1949. It amends the law relating to the **board of medical examiners** by requiring that the five members thereof be appointed from a list of names of qualified persons submitted to the governor by the New Mexico Medical Society. S. 248 has become chapter 108 of the Laws of 1949. It requires every physician attending a **pregnant woman** for conditions relating to the pregnancy to take or cause to be taken a **sample of blood** of such woman at the time of the first examination and to submit the same to an approved laboratory for a standard serological test for **syphilis**.

North Carolina

Bills Introduced.—H. 490 proposes to make it unlawful for anyone other than a pharmacist to deliver **barbituric acid** to any person and then only upon an original prescription of a person licensed by law to prescribe barbiturates. H. 602, to **amend the food and drug act**, proposes that if a drug is sold at retail and contains any quantity of aminopyrine, barbituric acid, conchophen, dinitrophenol, sulfanilamide, pituitary, thyroid or their derivatives it must be sold on the written prescription of a member of the medical, dental or veterinary profession who is licensed by law to administer such drug, or else must be labeled in a certain manner. H. 686, to amend the law relating to **osteopathy**, proposes to authorize osteopathic physicians to use **medicinal** preparations which are purchasable by the general public without a physician's prescription. S. 198 proposes to authorize and **impower the North Carolina Medical Care Commission** to establish and promulgate rules and regulations whereby physicians, dentists, pharmacists and nurses receiving loans from the state shall receive a credit on such loan for each year of practicing his or her profession in a rural area in the state. S. 352 proposes that any person may by will **dispose of all or part of his body** to a teaching institution, university, college, the State Department of Health, legally licensed hospital or any other legally licensed hospital, agency or commission operating an eye bank, bone or cartilage bank, a blood bank or any other bank of a similar nature and kind designated for the rehabilitation of the maimed.

Bills Enacted.—H. 411 was ratified March 22, 1949. It makes it the duty of every **physician to notify** the local **health officer** of the name, address and such other items as might be required of any person by whom the physician is consulted professionally and who is found to have **cancer** of any type, or who is suspected of having cancer of any type. S. 96 was ratified March 22, 1949. It requires all physicians and midwives having charge of a birth of a **prematurely born infant** to give immediate **notification** thereof to the local health department of the county in which the infant was born.

North Dakota

Bill Enacted.—S. 28 was approved March 12, 1949. It requires every physician or other person authorized by law to practice obstetrics who attends a pregnant woman in North Dakota for conditions relating to pregnancy during the period of gestation or at delivery to take or cause to be taken a sample of blood of such woman at the time of the first professional visit or within ten days thereafter and to submit such sample to an approved laboratory for a standard **serological test for syphilis**. S. 226 was approved March 18, 1949. It prohibits the **delivery of barbiturates** to any person except by a pharmacist on an original **prescription** from a person licensed by law to prescribe and administer barbiturates.

Ohio

Bills Introduced.—H. J. Res. 32 proposes the creation of a **committee to investigate** and examine the operations and activities of various **boards of** examiners, including the **medical examiners**, and to make recommendations for the elimination of any irregular or corrupt practices that may exist and to report such irregularities to the attorney general for prosecution. H. 304 proposes the creation of a state **board of chiropractic examiners** and defines chiropractic to be the art and science of locating, the procedure preparatory to adjusting and the adjusting by hand of the subluxations of the articulations of the spinal column which is deemed to be the twenty-four movable vertebrae, including the sacrum and coccyx and adjacent tissues, for the purpose of removing any interference with nerve transmission; but it shall not include surgery or the administration or prescription of any drug included in materia medica. H. 308 proposes to make it unlawful to deliver any of **the barbiturates** except by a pharmacist on the original prescription of a person licensed in the state to prescribe and administer drugs. H. 446 proposes the creation of a commission to study the problem created by **chronic alcoholics** throughout the state and to advise on the feasibility of state institutions for their treatment. H. 454 proposes that any person subject to arrest found in a **coma, semi-coma, unconscious or semi-conscious** condition shall not be detained in any municipal or county jailhouse until a competent physician licensed to practice in the state of Ohio shall have **certified** that such **detention** will not be detrimental to the health of such person. H. 564 proposes the creation of a **health commission** to make a comprehensive **study** of all laws relating to the health and welfare of the citizens of the state, and the administration of health laws of the state, and to study and investigate such laws for the purpose of recommending changes or **revisions of the present health system.** H. 613 proposes the creation of a **state board of naturopathic examiners** and defines naturopathy as that philosophy and system of the healing art embracing prevention, diagnosis, and the care of and treatment of human ills, diseases, traumas, deformities, and functions by the use of the several properties of air, light, heat, cold, water, mechanics, electricity, manipulation, and psychology, together with the use of such substances, largely nutritional, of plant, animal or mineral origin as are naturally found in and required by the body. Naturopaths would not be permitted to practice major surgery or use x-ray, radium, and radioactive substances for therapeutic purposes, or to prescribe for internal use any substance required by law to be labeled poison.

Oklahoma

Bill Introduced.—S. 253 proposes to amend the medical practice act so as to permit the state board of medical examiners to issue **temporary licenses** to applicants desiring a license only for the purpose of serving a residency in the state in a hospital approved for resident training by the State Board of Medical Examiners. The temporary license would

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expire at the end of a calendar year or at the expiration of the resident training and may be renewed for not more than two additional years on approval of the State Board of Medical Examiners.

Oregon

Bill Introduced.—S. 406 proposes the creation of a **state** board of **massotherapy examiners** and defines massotherapy as the art of kneading, rubbing and massaging of the human body with or without such appliance as steam bath, vapor bath, electric light bath, electric vibrator for hygienic or remedial purposes to **maintain** health and establish a normal condition of the body.

Bill Enacted.—S. 213 has become chapter 162 of the Laws of 1949. It amends the osteopathic act by providing that the **practice of osteopathy** and surgery by a duly appointed member of the resident staff or by an intern while actually serving as such in any legally incorporated osteopathic hospital shall not be governed by the act. The law also authorizes the board of osteopathic examiners to accept a **certificate of** successful **examination** issued by the National Board of Examiners of Osteopathic Physicians and Surgeons.

Pennsylvania

Bills Introduced.—H. Res. 26 and H. Serial No. 36 propose to memorialize the Congress of the United States to defeat the passage of the **Wagner-Murray-Dingell socialized medicine** bill. H. 1177 proposes that every employer of one hundred or more persons shall employ or **engage one or more licensed physicians** who shall be present to render medical assistance at all necessary times at the place where work is in progress. H. 1209 proposes to authorize the board of health to furnish **free** or at less than cost **insulin treatments** to certain persons suffering from **diabetes** and who are without adequate funds to pay for such treatments. H. 1210 proposes to authorize the department of health to furnish **free** or less than cost **streptomycin treatments** to certain persons suffering from **tuberculosis** who are without adequate funds to pay for such treatments.

Rhode Island

Bill Introduced.—H. 792 proposes to require **physicians and osteopaths** to register their licenses annually. H. 924, to amend the administration act of 1939, proposes to authorize the division of professional regulation to appoint examiners for electrolysis and the basic sciences. The proposal then provides that one member of each of the **chiropractic, osteopathic and electrolysis boards** shall be a physician licensed to practice medicine in the state of Rhode Island and that membership on the basic science board shall be **made** up of two members selected from the faculties of Brown University, Providence College and Rhode Island State College who are full time professors or associate or assistant professors in the basic sciences and one member who shall be a pathologist of training and experience sufficient to give him a broad knowledge of the subject. S. 229 proposes the creation of **a basic science examining board.**

South Carolina

Bills Introduced.—H. 1233 proposes the creation of a **State Licensing Board for the Healing Arts.** Applicants who have complied with all the requirements of the law relating to the practice of specified branches of the healing art shall be entitled upon filing of duplicate certificates with the State Licensing Board for the Healing Arts to apply to the Licensing Board for the Healing Arts for a license to practice the special branch of the healing art for which such certificate was filed. "But no such applicant, as a matter of right, shall be entitled to have the license issued by the State Licensing Board for the Healing Arts, it being the purpose and intent of this Act to give to the State Licensing Board for the Healing Arts an over-all supervision, discretion and judgment with respect to the issuance of licenses authorizing the licensee to practice the healing art or any branch thereof within the State of South Carolina, and the State Licensing Board for the Healing Arts as herein created and constituted shall have the power and it shall be its duty to inspect and determine for itself and in the interest of the State that each and every certificate issued by any board authorized by law to receive applications, conduct examinations and make a preliminary determination of the fitness of any applicant for a license to practice the healing art or any branch thereof, was lawfully issued by such board and truly and correctly certifies all the facts therein contained." H. 1284, to amend the law relating to **naturopathy,** proposes a new definition of naturopathy as follows: the use and practice of psychological, mechanical and material health sciences to aid in purifying, cleaning and normalizing human tissues for preservation or restoration of health according to the fundamental principles of anatomy, physiology and applied psychology, as may be required. Naturopathic practice employs among other agencies, heat, light, water, electricity, psychology, diet, massage and other manipulative methods. These agencies are known as psychotherapy, suggestotherapy, hydrotherapy, electrotherapy, mechanotherapy, biochemistry, external appliances, mechanical and electrical appliances, hygiene, first aid, sanitation, heliotherapy and dietetics. H. 1440 proposes to repeal the **naturopathic practice act.**

South Dakota

Bills Enacted.—H. 217 was approved Feb. 23, 1949. It repeals existing state laws relating to the practice of medicine and the practice of osteopathy and creates a state **board of medical and osteopathic examiners** of which one member is a doctor of osteopathy. Applicants for a license to practice either medicine or osteopathy would take the same examination except that medical applicants would be examined in the practice of medicine and osteopathic applicants in the practice of osteopathic medicine. Licenses must state upon their face whether or not the licensee is licensed to practice medicine or surgery or osteopathic medicine and surgery. S. 167 was approved Feb. 25, 1949. It permits the organization of **cooperative associations** for the construction and operation of hospitals and provides for medical services. S. 271 was approved March 2, 1949. It permits the newly created board of **medical and osteopathic examiners** to grant temporary licenses to practice when the board by resolution finds that an urgent need exists in any part or portion of the state. The temporary license shall be issued and effective for such period as the board shall determine not exceeding four years from the date of issuance and it shall entitle the person to whom issued to engage in the practice of medicine, surgery and obstetrics and their branches during the period specified in such license in such portion or part of the state as may be designated.

Tennessee

Bill Introduced.—H. 978 proposes the creation of a state **board of examiners** for **naturopathy** and defines naturopathy as the prevention, diagnosis and treatment of human injuries, ailments and diseases by the use of such physical forces as air, light, water, vibration, heat, electricity, **psychotherapy,** neuropathy, dietetics, massage and the administration of botanicals and biologicals, but shall not include the administration of narcotics, sulfonamide drugs or powerful physical agents, such as x-ray and radium therapy, or surgery.

Bill Enacted.—H. J. Res. 6 was approved Feb. 4, 1949. It resolves that the House of Representatives go on record as opposing **socialized medicine** in all of its phases and proposes that the House request and urge the Senators and members of the House of Representatives representing Tennessee in the Congress of the United States **to resist** legislation setting up **socialized medicine.**

Texas

Bills Introduced.—H. 588 proposes to require all **applicants** for a **marriage license** to present a certificate from a duly qualified physician licensed to practice medicine and surgery in Texas or in any state or territory of the United States stating that the applicant has been given an actual and thorough examination for **syphilis** and that the person examined is free from any infectious condition of that disease. H. 597 proposes to require every physician permitted by law to attend a **pregnant woman** during gestation to take or cause to be taken a sample of the **blood** of such woman at the time of the first examination and to submit same to a laboratory for a standard serologic test for **syphilis.** H. 721 proposes the creation of a Texas board of **chiropractic examiners** and defines a chiropractor as one who shall employ objective or subjective means without the use of drugs or surgery, for the purpose of ascertaining the alignment of the vertebrae of the human spine and the practice of adjusting the vertebrae to correct any subluxation or misalignment thereof. H. 760 proposes that corporations furnishing **nonprofit hospital service** or group hospital service shall **not discriminate against** any **hospital** or restrict the right of the **patient** to obtain the services of any licensed doctor of medicine or osteopaths or any other person licensed by the Texas board to practice any branch of the healing arts.

Vermont

Bills Introduced.—H. 338 proposes the enactment of a **hospital licensing** law. H. 376 proposes to require every person licensed to practice **medicine and surgery** to have his **license annually renewed** by the secretary of the state board of medical registration on or before January 31 of each year. Failure to do so would forfeit the right to practice his profession. H. 404 proposes that it shall not be necessary in **malpractice actions** for the **plaintiff** to introduce in **evidence** expert testimony for the purpose of establishing a standard of care and skill for the purpose of showing the failure of the defendant to observe such standard.

West Virginia

Bill Enacted.—S. Con. Res. 9 was adopted March 2, 1949. It provides for the creation of a committee to make a study and **survey concerning** the advisability of the establishment of a four year **school of medicine** and **dentistry** at West Virginia University.

Wisconsin

Bills Introduced.—A. 215, to amend the law relating to chiropodists, proposes to **limit** the **practice of a chiropodist** by providing that nothing contained in the act shall be construed to permit major surgical operations on the foot, nor minor operations on the foot involving vascular diseases or diabetes except on the advice of one licensed to practice under the medical practice act, nor the treatment of conditions of the feet involving osteomyelitis, malignancies, or syphilis, nor the therapeutic use of x-ray and radium, nor cutting operations involving the bones, ligaments, muscles, nerves or tendons of the feet. A. 472, to amend the law relating to chiropractors, proposes to eliminate the existing provision which requires that at the time of the annual **renewal of the license** the applicant must present satisfactory evidence that he has attended at least one of the two-day educational programs conducted by the **Wisconsin Chiropractic Association.** A. 475 proposes that no person shall conduct a **postmortem examination** of the body of a deceased person unless **licensed** to **practice medicine** and surgery and then only after first obtaining the written consent of the surviving heir who takes possession of the body. S. 504 proposes that no person shall **practice the professions** of law, medicine, dentistry, nursing, chiropractic, accounting or any other profession for which a license is required by the state unless he shall annually file with the Secretary of State an **oath** that he is **not a member** of the **Communist Party.**

Wyoming

Bill Introduced.—S. J. M. 5 proposes to memorialize the Congress of the United States to refrain from imposing upon the citizens of the nation **any form of compulsory health insurance** or any system of medical care designed for national bureaucratic control.

Bill Enacted.—S. 20 has become chapter 48 of the Laws of 1949. It amends the hospital licensing law enacted by the 1948 legislature by requiring the state board of health to submit, biennially, to the legislature a **code of minimum hospital standards** for all hospitals in the state.

GOVERNMENT SERVICES

ARMY

CHANGES IN ARMY MEDICAL AND DENTAL R.O.T.C. SUMMER CAMP PROGRAM

The Surgeon General has announced that changes in the medical and dental reserve officers' training corps summer camp program have been approved by the Department of the Army General Staff. Changes affect only those students who are veterans of one year or more of active military service. They include: (1) use of Army general hospitals instead of the Medical Field Service School for the summer training of qualified persons; (2) the revision of the summer military training program for such persons so as to place primary emphasis on military medicine, dentistry and surgery, and (3) a corresponding reduction in the number of hours devoted to essentially military subjects in that program.

The revisions will not affect those students who are not qualified by a year or more of active military service, As in previous years, they will attend the normal Medical and Dental R.O.T.C. Summer Camp conducted at the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas.

Primary reason for the changes was recognition of the fact that veterans of one year or more of active military service are already qualified in most basic military subjects, and their reaction to refresher training in military subjects was not always conducive to the best interests of the program. Under the new changes this condition will be eliminated and these veterans will be free to utilize this training period in a manner more advantageous to both themselves and the service.

Qualified medical and dental students will be sent to selected Army general hospitals for a six week period during the summer instead of to the Medical Field Service School. During this period they will receive orientation in military matters, but the major share of their time will be spent in the wards or dental clinics of the hospitals. They will also attend as many of the regularly scheduled formal teaching exercises as can be integrated into their program. A greater portion of the teaching will be accomplished by the residents, interns and the attending staff assigned to the hospital. With few exceptions the hospitals in which they will undergo this training are at present participating in the programs of nearby medical schools. In addition, a majority of the attending staff physicians and dentists are closely connected with civilian professional schools.

Training periods at the selected general hospitals will be six weeks in length. Two classes will be conducted at each: one beginning June 12 and one beginning August 1. So far as possible, all qualified students at one institution will be sent to the same class at the same installation.

SCRUB TYPHUS RESEARCH UNIT RETURNS TO MALAYA

The Surgeon General's Office announces that the Army Medical Department Scrub Typhus Research Unit has returned to Malaya to continue studies on the effectiveness of the new antibiotic chloromycetin.® The Army research team was invited by the government of the Federation of Malay States and will work at the Institute for Medical Research at Kuala Lumpur with scientists of that institution. The objects of the mission are: (1) to try out on scrub typhus patients a new synthetic chloromycetin® developed by the Parke, Davis Laboratories; (2) to investigate the use of this product for prophylaxis in order to protect troops in typhus areas, and (3) to determine whether the new synthetic is as effective as the natural mold derivative, crystalline chloromycetin,® in the treatment of typhoid.

Chloromycetin® was first reported to the public in October 1947. The preliminary research and subsequent field tests were directed by Dr. Joseph E. Smadel, director of the Department of Virus and Rickettsial Diseases. The results of treatment of cases of typhoid with chloromycetin® were announced in July 1948 and its application to the treatment of spotted fever was described in October 1948. Chloromycetin® is a crystalline substance obtained through the concentration and purification of cultures of a streptomyces. The mold, which was discovered by Dr. Paul R. Burkholder of Yale in a specimen of soil from Venezuela, was referred to Parke, Davis and Company, where the active material from the extract was isolated in crystalline form by Drs. Quentin R. Bartz and John Ehrlich and associates.

VANDERBILT SPONSORS RESERVE HOSPITAL UNIT

The Medical School of Vanderbilt University, Nashville, Tenn., has agreed to sponsor an Army reserve hospital unit made up of personnel in the Nashville area. Following completion of the agreement, military officials participating were guests of the University at a luncheon. Among those present were Chancellor Branscomb of Vanderbilt; Dean Goodpasture of the Medical School; Brig. General Hugh Morgan of the Medical Corps Reserve; Col. Harrison Shull; Col. Beverly Douglas; Lieut. Col. S. W. Hosea of the Tennessee R.O.T.C.; Major Don Crozier, professor of military science and tactics at Vanderbilt; Major Tom F. Little of the Third Army Headquarters, and Major McCleary Nash. During the recent war, Vanderbilt's Medical School sponsored the 300th General Hospital Unit which saw overseas service.

NONMEDICAL OFFICERS TO BE ASSISTANT INSPECTORS

The Surgeon General's Office announces a twelve week course at the Medical Field Service School, Fort Sam Houston, Texas, beginning April 18, to train Medical Service Corps officers as assistant medical inspectors. Officers who satisfactorily compiete the course will supervise programs of preventive medicine, including communicable disease control, environmental sanitation, personal hygiene and pertinent phases of sanitary engineering. To qualify, an applicant must be a high school graduate less than 40 years of age, must have completed the officer's basic course or an equivalent and have demonstrated an interest in preventive medicine.

INTERN TRAINING IN CIVILIAN INSTITUTIONS

The following first lieutenants of the Medical Department have been accepted for intern training in hospitals indicated:

Name	Institution
Apel, Otto F.	Saint Luke's Hospital, Cleveland
Cote, Richard H.	Los Angeles County General Hospital
Engles, Leroy L.	Scott and White Hospital, Temple, Texas
Gotteri, Joseph A.	Sacred Heart Hospital
Holt, Prescott B.	Roosevelt Hospital, New York
Ireland, Elwood F., Jr.	Hartford Hospital, Hartford Conn.
LaFlamme, Paul J.	Jersey City Medical Center, N. J.
Mikuta, John J.	University of Pennsylvania Hospital, Philadelphia
Schaffer, Edward V.	New York City Hospital, New York

POSTGRADUATE INSTRUCTION

The following medical officers have been accepted for advanced courses in civilian schools and hospitals:

Name and Rank	Institution	Course
First Lieut. Robert H. Bickford	State University of Iowa Hospitals, Iowa City, Iowa	Residency in medicine
First Lieut. Bela R. Rieger	New Jersey State Hospital, Greystone Park, N. J.	Residency in neuropsychiatry
First Lieut. Campbell A. McNicol	New York City Hospital, Welfare Island, N.Y.	Residency in pathology
First Lieut. John J. Meyerdierks	Jersey City Medical Center, Jersey City, N. J.	Residency in surgery

PUBLIC HEALTH SERVICE

UNITED STATES–CANADIAN CANCER CAMPAIGN

Federal agencies of the United States and Canada jointly are sponsoring an across the border campaign to tell the story of cancer research—what it means, what it has accomplished, what directions it is taking—to the people of both countries.

Dr. John R. Heller, Director of the National Cancer Institute of the Public Health Service, speaking for the United States sponsor, described the program before the opening campaign rally of the American Cancer Society at Constitution Hall, Washington, D. C. In Canada, simultaneous announcement was made by the Honorable Paul Martin, Minister of the Department of National Health and Welfare. A half-hour documentary motion picture, tentatively titled "The Scientist vs. Cancer," was described as the keystone of the new program. A shorter version for popular distribution is contemplated.

Supplementary materials, ranging from study guides for teachers and discussion leaders to booklets for students and lay groups, will be produced by the sponsoring agencies, the National Cancer Institute and the Canadian Department of Health and Welfare. Literature will be distributed in both countries.

This is the first time that the two countries have combined efforts in sponsoring a cancer education program. United States financial support for the project is through a National Cancer Institute grant of $20,000 to the Medical Film Institute in New York City. A similar sum was given by the Department of Health and Welfare in Ottawa to the Canadian National Film Board.

Completion of the film and supporting materials is expected within a year. In this country they will be made available to schools and other interested groups through the Public Health Service and through official and voluntary health agencies.

GRANTS FOR RESEARCH IN NONFEDERAL INSTITUTIONS

Research grants totaling $2,040,900 to finance medical and allied research projects in nonfederal institutions in thirty states, Alaska, Puerto Rico and the District of Columbia, were announced March 17. The grants were awarded following recommendations by the National Advisory Health Council and approval by Surgeon General Leonard A. Scheele of the Public Health Service. The 175 approved projects are designed to provide new scientific data on a variety of human ailments; several are concerned with the use of new drugs; others with the relation of vitamins to human nutrition and susceptibility to respiratory infections; the nature of air-borne infections and their control, and the toxicity of DDT to farm animals and its accumulation in products consumed by man. The projects also include pilot experiments on the effect of variations in the time relationships of insemination and ovulation in determining sex, a study of factors associated with reproductive failure in mammals, and basic research on aging.

The National Advisory Health Council, which recommended the grants, is composed of leaders in the medical sciences, public health and public affairs. The grants program is administered by the National Institutes of Health through the Division of Research Grants and Fellowships.

NATIONWIDE ATTACK ON WATER POLLUTION

President Truman has appointed six nongovernment members of the Water Pollution Control Advisory Board which will assist in controlling the programs and policies authorized by Congress for a nationwide attack on water pollution. The Board will hold its first meeting in the near future to assist in developing support and technical aid in water pollution problems and to provide technical services to state and interstate agencies for tests. The chief responsibility for carrying out provisions of the Water Pollution Act (Public Law 845) rests with the Surgeon General of the Public Health Service, but grants to aid in planning and construction of treatment works will be administered by the Federal Works Agency.

NEW CONSULTANTS TO STUDY SECTIONS OF INSTITUTES OF HEALTH

The Surgeon General has announced the appointment of a new group of consultants in the Study Sections of the National Institutes of Health at Bethesda, Md. They will replace members whose terms expired at the end of 1948. The Study Sections meet periodically to evaluate applications for grants to support medical research projects at nonfederal institutions. Then the applications are submitted to the Advisory Councils of the Public Health Service before being recommended for approval by the Surgeon General. The new consultants and the study sections to which they have been appointed follow:

Consultant	Study Section
Dr. Arthur P. Richardson, Atlanta, Ga.	Antibiotics
Dr. Harry H. Gordon, Denver	Antibiotics
Dr. Morris F. Shaffer, New Orleans	Bacteriology
Dr. Charles E. Smith, San Francisco	Bacteriology
Prof. William J. Darby, Nashville, Tenn.	Biochemistry and nutrition
Prof. Wendell H. Griffith, Galveston, Texas	Biochemistry and nutrition
Dr. John K. Lewis, San Francisco	Cardiovascular
Dr. George E. Burch, New Orleans	Cardiovascular
Dr. W. C. Stadie, Philadelphia	Cardiovascular
Dr. Allan G. Brodie, Chicago	Dental
Dr. Thomas J. Hill, Cleveland	Dental
Dr. Ernest W. Burgess, Chicago	Gerontology
Dr. Louis K. Diamond, Boston	Hematology
Dr. John M. Henderson, New York	Malaria
Dr. George H. Boyd, Athens, Ga.	Malaria
Dr. Samuel Soskin, Chicago	Metabolism and endocrinology
Dr. Arthur Grollman, Dallas, Texas	Metabolism and endocrinology
Dr. Douglas H. Sprunt, Knoxville, Tenn.	Pathology
Dr. Russell L. Holman, New Orleans	Pathology
Dr. Carl A. Dragstedt, Evanston, Ill.	Pharmacology
Dr. Harvey B. Haag, Richmond, Va.	Pharmacology
Dr. Howard B. Lewis, Ann Arbor, Mich.	Physiology
Dr. Carl Buck, Ann Arbor, Mich.	Public health
Dr. Donald Sheehan, New York	Public health
Dr. Simeon T. Cantril, Seattle	Radiobiology
Dr. Robert R. Newell, San Francisco	Radiobiology
Dr. Rolf Eliassen, New York	Sanitation
Dr. Harold B. Gotaas, Berkeley, Calif.	Sanitation
Dr. Malcolm H. Merrill, San Francisco	Syphilis
Dr. Asa C. Chandler, Houston, Texas	Tropical diseases
Dr. P. Morales Otero, San Juan, Puerto Rico	Tropical diseases
Dr. William F. Friedewald, Atlanta, Ga.	Virus and rickettsial
Dr. John H. Dingle, Cleveland	Virus and rickettsial

CANCER REGISTRATION

State health departments desiring to set up an active register of living persons with cancer can obtain forms and a manual explaining their use from the National Cancer Institute. A cancer register of this type is a control device that the Cancer Institute and the American Cancer Society hope will be adopted in each state. Report forms are designed to enable a state to obtain prompt and detailed data on the number, location, nature and condition of cases of cancer in the state. The registers would be helpful in measuring control progress, in planning more effective medical and public health procedures, in research, in evaluating results of various types of treatment, in providing special services for patients and in developing an improved follow-up system. The forms were designed by a committee of seven leading statisticians which began work on the project about a year ago.

Following are the types of forms used under the Cancer Register Plan: (1) for the private physician, a card form to expedite quick recording of confidential information on "every case of cancer, suspected cancer or other malignant tumor"; (2) for the hospital or tumor clinic, a letter-sized sheet for complete information on malignant neoplasms and method of treatment; (3) for the pathologist, a letter-sized sheet for complete histologic description of all tumors, and (4) for follow-up of treated cases, a letter-sized sheet to be filled out by hospital or tumor clinic at least once a year for the lifetime of each patient.

Type of examination, condition and location of patient are to be described. Each of the forms is to be dated and signed, and each provides space for the name, age, sex and race of the patient, plus case number and other information that would be helpful in cross referencing.

Requests for forms and help in their use should be addressed to Dr. John R. Heller, Director of the National Cancer Institute, Bethesda, Md.

MORPHOLOGY OF 1949 INFLUENZA

Viruses from the recent epidemic have been studied by Drs. W. J. Elford and I. M. Dawson of the National Institute for Medical Research in collaboration with the World Influenza Centre. Pictures of recently isolated viruses show predominantly long filamentous forms, 0.1 micron or less, in width, but up to 10 microns in length. These are mixed with varying amounts of "orthodox" round and intermediate forms. Long forms in influenza virus preparations were described in 1946 by Mosley and Wyckoff, but were never present regularly or abundantly enough to permit appraisal of their meaning. Now it is possible to study their behavior, and it is learned that their adsorption and elution from red cells are like that expected of influenza virus, and that they can be made visible under the ordinary microscope by dark ground illumination and can by this means be seen to be agglutinated by specific serums. These and other tests, while not conclusive, all indicate that these filaments represent a form of influenza virus. As yet they have been seen only in infected egg fluids or eluates of these. The long forms apparently become scantier on serial passage, especially through mice, and are relatively less numerous in "laboratory" strains of virus.

CHEST ROENTGEN SURVEYS

An eighteen unit roentgen team from the Tuberculosis Division of the U. S. Public Health Service assisted in the recent highly successful Seattle chest roentgen program sponsored by the city, county and state health departments and other local health groups. This team went to Tacoma, Wash., for a survey to be conducted there February 1-26, then on to Spokane, Wash., for another survey in April. A new eighteen unit team will cooperate likewise on a chest roentgen survey in Cleveland from March 9 to the middle of August.

ADDITIONAL INFLUENZA COOPERATING LABORATORIES

The Influenza Information Center of the National Institutes of Health (THE JOURNAL, January 8, p. 107) reports the addition of the following cooperating laboratories: Iowa State Hygienic Laboratory, University of Iowa, Iowa City; North Dakota State Department of Health Laboratory, Grand Forks, N. D.; University of Oregon Department of Bacteriology, Portland; Connaught Laboratories at the University of Toronto; Dominion Laboratories of Hygiene at Ottawa, and the Provincial Department of Health for Ontario at Toronto, Canada.

PERSONAL

The appointment of Senior Sanitary Engineer Sylvan C. Martin to head the Great Lakes Drainage Basin Office of the Division of Water Pollution Control at Chicago was announced by Assistant Surgeon General Mark D. Hollis, Chief of Engineering Activities of the Public Health Service, Federal Security Agency.

The Chicago office, located at 225 West Jackson Boulevard, is the third of fourteen proposed river basin offices being established to coordinate the federal water pollution control activities with state, interstate and local agencies as provided in the recently enacted Water Pollution Control Act.

Mr. Martin will work with the states in this basin on the development of a comprehensive program for the abatement of water pollution. This will involve the location of sources of pollution, determination of the most suitable use for the stream and ultimately the determination of water quality standards considering the conservation of waters for public water supplies, propagation of fish and aquatic life, recreational purposes, agricultural, industrial and other legitimate uses.

MISCELLANEOUS

NO CHARGE FOR RADIOISOTOPES FOR RESEARCH

The Atomic Energy Commission announces that it will make available to qualified cancer research workers in the United States without charge all radioisotopes now being sold. The new policy will make available on a free basis the radioisotopes of more than fifty additional elements, notable among which is the radioisotope of cobalt, which promises to become an effective substitute for radium in the treatment of cancer. Two other important cancer research materials that will be available without charge are the radioisotopes of gold and carbon. The new program has been made possible through improvements in the production of isotopes at the Oak Ridge National Laboratory at Tennessee and at the Argonne Laboratory in Chicago.

The free isotopes will be allocated for the following purposes: (1) research programs studying basic cellular metabolism of cancerous cells, (2) cancer investigations involving animal subjects, (3) experimental programs designed to evaluate the therapeutic use of radioactive materials. Applicants for materials must fulfil the requirements of the Atomic Energy Commission and offer assurance that there will be no resale or charges to patients for the isotopes thus procured. Applicants for radioisotopes for use in human beings must be approved by a subcommittee composed of leading physicians. The subcommittee has established the following criteria for the allocation of radioactive materials for human use:

1. The physician using the materials must be associated with a medical institution, hospital or clinic or other medical organization possessing adequate facilities for the proper use of such materials.

2. The use of the materials must meet with the approval of a local isotope committee of the hospital or medical institution with which the physician is associated.

3. Clinical users of radioactive materials must be physicians in good standing with their local medical society and must have had previous clinical experience with radiation or be directly collaborating with persons possessing such experience.

Inquiries from interested investigators should be addressed to the Isotopes Division, U. S. Atomic Energy Commission, Oak Ridge, Tenn.

PANAMA DECORATES ENTOMOLOGIST

The Republic of Panama has conferred its highest award, the Vasco Nunez de Balboa decoration, on James Zetek of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, in recognition of his work on entomologic and other biologic problems of Panama and the Canal Zone, where he has worked for thirty-eight years. In 1911 he was appointed as entomologist with the old Isthmian Canal Commission. His duties were mostly concerned with the control of malaria, bubonic plague and yellow fever throughout the Canal Zone. While in this position, he discovered a method of determining the flight of malarial mosquitoes. In 1913 he was appointed state entomologist of the Republic of Panama, and later was named Director General of the National Exposition of Panama. In 1920 he was appointed specialist in tropical insects in the Bureau of Entomology, and he has been associated with the Bureau continuously since that time. At present he is in charge of the laboratory of the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture at Ancon, Canal Zone.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARIZONA

Annual State Medical Meeting.—The Arizona State Medical Association will hold its annual meeting at the Hotel Pioneer, Tucson, May 8-11 under the presidency of Dr. Harold W. Kohl, Tucson. Out-of-state physicians on the program include:

Irving S. Wright, New York, Use of Anti-Coagulants in Thrombo-Embolic Diseases.
John H. Ebbs, Toronto, Canada, Pediatrics.
Winona G. Campbell, Denver, Diagnosis and Differential Diagnosis of Poliomyelitis.
Willis D. Gatch, Indianapolis, Cholecystitis.
Arthur B. Cecil, Los Angeles, Genital Abnormalities.

The banquet will be held the evening of May 10.

CALIFORNIA

Special Society Election.—The Los Angeles Society of Ophthalmology and Otolaryngology has elected Drs. Warren A. Wilson, president, and Victor Goodhill, secretary-treasurer for the coming year. The society meets the fourth Monday of each month from September to May inclusive at the Los Angeles County Medical Association Building.

Promotions on Medical Faculty.—Stanford University at Stanford has announced promotion of the following members of the medical faculty to professors: Donald J. Gray, Ph.D., and Hadley Kirkman, Ph.D., in the anatomy department; Dr. John K. Lewis in medicine and Dr. Donald E. King in surgery. Dr. Robert H. Dreisbach has been promoted to associate professor in pharmacology and Robert S. Turner, Ph.D., to associate professor of anatomy. Frederick A. Fuhrman, Ph.D., and Dr. Clarence M. Tinsley have been promoted to assistant professors in physiology and medicine, respectively.

CONNECTICUT

State Medical Society Annual Meeting.—The Connecticut State Medical Society will hold its annual meeting at the Teacher's College of Connecticut, New Britain, May 3-5. Visiting speakers at the general program include:

Arthur M. Fishberg, New York, Present Day Treatment of Hypertension.
John A. V. Davies, Boston, Present Day Concepts and Methods of Immunization of Children.
Willard M. Allen, St. Louis, Indications and Dangers in the Uses of Estrogens and Androgens.
William L. Estes Jr., Bethlehem, Pa., Reduction of Mortality in Surgery of the Aged.
Charles A. Flood, New York, Natural History of Peptic Ulcer.
J. William Hinton, New York, Surgical Management of Peptic Ulcer.
Albert J. Sullivan, New Orleans, Personality in Peptic Ulcer.
Edith H. Quimby, Sc.D., New York, Some Uses of Radioactive Isotopes in Medicine.
Edwin B. Astwood, Boston, Treatment of Hypertension with Antithyroid Compounds.
Philip S. Hench, Rochester, Minn., Management of Rheumatoid Arthritis.
Isidore S. Ravdin, Philadelphia, Treatment of Diseases of the Gallbladder and Common Duct.

At a Symposium on Nephritides Thursday afternoon Dr. John P. Merrill, Boston, will speak on "Use of the Artificial Kidney"; Dr. Kendall Emerson Jr., Boston, "Applications of the Artificial Kidney in Medicine," and Dr. J. Hartwell Harrison, Boston, "Management of Renal Insufficiency in Surgery."

At the annual dinner at the Indian Hill Country Club presentation of Fifty Year Membership Awards will be made. The Woman's Auxiliary to the society will meet May 4, at the country club. Besides section meetings of the society, there will be meetings for the state diabetes association, association of medical record librarians and occupational therapy association, and the Association of Medical Examiners, Association of Tumor Clinics and the state chapter of the American Physiotherapy Association.

ILLINOIS

Public Health Physicians Needed.—The Illinois Department of Public Health is in need of public health physicians, for which examinations are to be held May 21. State residence is waived for these applicants. Out-of-state applicants who want to take the written tests outside of Illinois should file this request with their applications well in advance of the closing date, April 30. Physicians are needed to perform professional work under the guidance of a public health physician in state or local public health programs, as well as public health physicians to plan and direct major public health service programs under direction. Salary ranges are from $360 to $460 and $480 to $580, respectively. Applications should be filed with the Illinois Civil Service Commission, 501 Armory Building, Springfield.

Graduate Conference.—A postgraduate conference, arranged by the Illinois State Medical Society, will be held in the Eighth Councilor District April 21 at the Wolford Hotel, Danville, with Dr. Harlan English, Danville, presiding. On the program will be:

Don C. Sutton, Chicago, Use of Anticoagulants in Vascular Disease.
Richard B. Capps, Chicago, Liver Function: Practical and Theoretical Aspects.
Leonard F. Weber, Chicago, Contact Dermatitis (Eczema), illustrated.
Frederick A. Jostes, St. Louis, Some Aspects of the Diagnosis and Treatment of Low Back Pain.
Michael H. Streicher, Chicago, Constipation: Clinical Application in Its Management, illustrated.

At the dinner session, Dr. Eric Oldberg, Chicago, will discuss "Diagnosis and Treatment of Head Injuries." The eighth councilor district comprises the counties of Champaign, Clark, Coles, Crawford, Cumberland, Douglas, Edgar, Jasper, Lawrence, Richland and Vermilion.

Chicago

Section Meeting of Heart Association.—The Clinical Section of the Chicago Heart Association will meet April 20 from 10 a. m. to 12:15 p. m. at St. Luke's Hospital. A series of eight short papers will be presented. All physicians are welcome to attend.

Hektoen Lecture.—The twenty-fifth Ludvig Hektoen Lecture of the Frank Billings Foundation will be delivered at the Palmer House on Friday evening, May 27, by Dr. William B. Wartman, professor and chairman of the department of pathology, Northwestern University Medical School, on "Bleeding into the Arterial Wall; Its Relation to Vascular Disease."

The Irish Memorial Lecture.—Dr. Paul A. O'Leary professor of dermatology and syphilology at the Mayo Foundation for Medical Education and Research, Rochester, Minn., will deliver the third annual Henry E. Irish Memorial Lecture at the University of Illinois College of Medicine on April 27 at 1 p. m. on "Changing Concepts of the Treatment of Syphilis." The lecture was endowed three years ago by Eta Chapter of Alpha Kappa Kappa as a memorial to Dr. Henry E. Irish, late head of the pediatrics department.

Personals.—Dr. Vida A. Latham, a graduate of Northwestern University Woman's Medical School, Chicago, 1895, has been named recipient of the 1949 citation of the Michigan Alumnae Club of Chicago as the outstanding alumna. She received a D.D.S. degree at the University of Michigan, Ann Arbor. Dr. Latham has served as a member of the staff of Northwestern University Woman's Medical School and of the Milwaukee College of Physicians and Surgeons.——Dr. Louis E. Schmidt, who was recently feted at Northwestern University on his eightieth birthday, will retire from active practice April 20 and move to Wausau, Wis.——Dr. Emil H. Grubbe, Chicago, has given his private library, a thousand volume collection dealing with roentgen therapy, to the John Crerar Library.——Dr. Joan Fleming, Chicago, a graduate of the University of Chicago, 1937, has been appointed assistant professor of psychiatry at the University of Illinois College of Medicine. Dr. Fleming was a resident in psychiatry at the Albert Merritt Billings Hospital from 1938 to 1940 and an instructor in psychiatry at the University of Chicago School of Medicine from 1939 to 1943.

Open New Laboratory.—The University of Illinois' new $400,000 Aero Medical and Physical Environment Laboratory, planned to study the effect of physical environment in health and disease, was officially opened April 11. Research programs will be undertaken immediately. Dr. Andrew C. Ivy, vice president of the University of Illinois in charge of the Chicago Professional Colleges, will serve as director. The staff is headed by Dr. John P. Marbarger, research director; Victor Guillemin Jr., Ph.D., biophysicist, and Maurice K. Fahnestock, M.S., engineering director. The building, located in the Medical Center District on Chicago's near West Side, has been under construction since September 1947. The research studies are expected to contribute to basic physiologic knowledge concerning the effect of physical environmental factors on healthy and diseased human beings. The studies also are designed to improve therapeutic procedures in the treatment of certain types of disease and to supplement present knowledge in the field of aviation medicine. Major installations planned for the future include a radiation test laboratory, a constant temperature, humidity and pressure room and a noise and vibration-free room.

KANSAS

Postgraduate Course in Surgery.—The University of Kansas School of Medicine, Lawrence–Kansas City, in cooperation with the Kansas Medical Society and the Kansas State Board of Health, has arranged a postgraduate course in general surgery April 25-27 for doctors in general practice as well as for surgeons of Kansas or adjacent states. In addition to the members of the University of Kansas faculty, guest instructors include Drs. Wayne C. Bartlett, Wichita; Guy A. Caldwell, New Orleans; Reed M. Nesbit, Ann Arbor, Mich., and Dallas B. Phemister, Chicago. The fee is $20. Complimentary enrolment is granted to interns and residents on identification by their hospital superintendents.

KENTUCKY

Regional Blood Center at Louisville.—The Louisville Regional Red Cross Blood Center, which will furnish blood free of charge in Louisville and the surrounding 75 mile area, will open in May at its new headquarters at 1470 South Third Street. Blood donations will be taken, and a supply will be available for those needing the blood. A "bloodmobile" will be operated to procure donations in the 27 surrounding counties participating in the program.

Retiring Dean of Medical School Honored.—At a testimonial dinner at the Louisville Country Club attended by more than two hundred physicians on the teaching staff of the University of Louisville School of Medicine, Dr. John Walker Moore, retiring dean, was the guest of honor. Among the speakers who paid him tribute was Dr. Irvin Abell, past president of the American Medical Association, who enumerated the many honors received by Dr. Moore in his twenty years as dean. Other physicians who gave testimonials on behalf of Dr. Moore were Drs. Guy Aud, former president of the Kentucky State Medical Association, James Bruce, Morris Flexner, R. Glen Spurling, Oscar O. Miller, Joseph C. Bell and H. Hart Hagan, all Louisville physicians. Many concurred in the opinion that Dr. Moore was responsible in great part for the improvement in the Louisville General Hospital and the medical school and its laboratories. Dr. Moore was presented with a television set and an engraved silver plaque commemorating the occasion.

MICHIGAN

Dr. Keane Named Emeritus Professor.—After forty-two years' association with Wayne University College of Medicine, Detroit, Dr. William E. Keane, former professor of urology, has been appointed emeritus professor of urology by the Detroit Board of Education. Dr. Keane, who is now serving as a consultant for Providence Hospital, joined the Wayne faculty in 1902. He has been professor since 1912 and head of the department of urology for seventeen years. Recently the staff of Providence Hospital presented the college of medicine with a portrait of Dr. Keane.

Meeting on Fractures and Other Traumas.—The Genesee County Medical Society and the Flint Regional Committee on Fractures and Other Traumas will present the fifth Annual Fracture and Other Traumas Program the afternoon of May 18 at the Merliss Brown Auditorium in Flint. Speakers on the program, all of Flint, are:

Richard L. Rapport, Practical Applications of the Basic Sciences of the Surgery of Trauma.
Harold W. Woughter, Transportation of the Injured.
Hardie B. Elliott, Receiving and First Aid Procedures.
Donald L. Bishop, Time Factors in Fracture Management.
Stephen M. Gelenger, Thoracic Trauma.
Edwin P. Vary, Abdominal Trauma.
Donald R. Brasie, Open Fractures.
Alvin M. Thompson, Early Recognition of Urological Injuries.
Hira E. Branch, Fractures in Children with Consideration of Seasonal Variations.
Max E. Dodds, Hip Fractures.

At the dinner meeting Mr. Stephen J. Roth, attorney general of Michigan, will speak on "The General Practitioner and His Medico-Legal Responsibilities."

MISSOURI

Society Election.—The Missouri State Medical Association, meeting in March, installed Dr. W. Wallis Smith, Springfield, as president, and chose Drs. William A. Bloom, Fayette, president elect; Harold E. Petersen, St. Joseph, secretary; Charles E. Hyndman, St. Louis, treasurer, and Francis T. H'Doubler, Springfield, as speaker of the house.

NEW JERSEY

State Medical Meeting.—The Medical Society of New Jersey will hold its annual meeting at the Ambassador Hotel, Atlantic City, April 25-28 under the presidency of Dr. J. Howard Hornberger, Roebling. The tentative program, arranged in eighteen individual sections for the entire membership of the society, lists the following out-of-state speakers:

Armand J. Quick, Milwaukee, The Coagulation Mechanism with Reference to Prothrombin.
Lloyd J. Thompson, Winston-Salem, N. C., Psychiatry in Relation to Obstetrics.
Ira S. Ross, Newark, Carbohydrate Metabolism and Cerebral Dysrhythmia, a Clinical Syndrome.
Barton R. Young, Philadelphia, Roentgenological Diagnosis of Gastro-Enterological Diseases.
Currier McEwen, New York, Development of the Campaign Against Rheumatism Abroad and in This Country.
Lester C. Mark, New York, Pre-Anesthetic Preparation in Children.
Frank H. Lahey, Boston, Some Developments in the Management of Thyroid Disease.
Andrew A. Marchetti and Edward B. Tuohy, Washington, D. C., Prevention of Infantile Mortality.
Joseph D. Aronson, Philadelphia, and Edwin R. Levine, Chicago, Symposium on BCG Vaccination for the Control of Tuberculosis.
Hugo Roesler, Philadelphia, Selected Features in the Electrocardiographic Diagnosis of Myocardial Infarction.
Nels A. Nelson, Baltimore, Use and Control of Penicillin.
Bruce Webster, New York, Clinical Results in the Use of Penicillin in the Treatment of Syphilis.
I. Arthur Mirsky, Cincinnati, The Patient with Diabetes Mellitus.
Bradley L. Coley, and Norman L. Higinbotham, New York, Significance of Cartilage in Abnormal Location.
Richard H. Overholt, Brookline, Mass., Second Most Important Silent Lesion.
Glen G. Gibson, Philadelphia, Surgery of the Extraocular Muscles.

NEW MEXICO

State Medical Convention.—The New Mexico Medical Society Convention will be held in Roswell May 5-7. Seven guest speakers will present the scientific papers, covering a variety of specific subjects of much general interest. Each paper will be followed by a discussion led by an association member. The speakers and their specialties are:

J. Mackenzie Brown, Los Angeles, otolaryngology.
M. Edward Davis, Chicago, obstetrics and gynecology.
E. Starr Judd, Rochester, Minn., medicine.
Earl D. McBride, Oklahoma City, orthopedic surgery.
Armand J. Quick, Milwaukee, biochemistry.

The annual banquet will be held Friday night at 8 o'clock. A section program on ophthalmology and otolaryngology will be held Thursday afternoon, Friday and Saturday.

NEW YORK

Four-County Clinic Day.—A clinic teaching day will be conducted April 20 at the Rochester Academy of Medicine under the sponsorship of the Medical Society for the Counties of Genesee, Orleans, Livingston and Wyoming. Four papers will be presented in the morning and afternoon sessions on the subjects of wide interest to general practitioners. Each paper will be followed by discussion.

Spring Teaching Day.—The Chemung County Medical Society, the state medical society and the New York State Department of Health will conduct a Spring Teaching Day at the Mark Twain Hotel, Elmira, April 20, beginning at 2 p. m. The program is as follows:

Lawrence E. Young, Rochester, Differential Diagnosis of Jaundice.
A. Wilbur Duryee, New York, Management of Occlusive Arterial Disease and Phlebitis.
Milton G. Bohrod, Rochester, Use of the Laboratory in Clinical Medicine: A Study in Clinicopathologic Correlation.

At the evening session, the fourth annual Elliott T. Bush Memorial Lecture will be given by Dr. Sidney M. Schaer, Buffalo, on "Blood, Protein and Fluid Balance."

Record Low Death Rate.—The New York State Department of Health reports that a new low death rate of 10.8 per 1,000 population was established in the state in 1948; 157,948 persons' deaths were recorded last year. The 1947 death rate was 11.1. The 1948 birth rate of 20.7 per 1,000 population was the highest in a quarter of a century with the exception of the 1947 rate of 22.8. New low death rates were established last year: for tuberculosis, 35.5 per 100,000 population, a decline of 1.3 for 1947, representing a drop of 1,200 in the number of deaths since 1943 and a decline of 24 per cent in the rate in five years; for influenza, 0.8 per 100,000, half the previous rate set in 1947; for pneumonia, 35.2, a drop from 39.6 in 1947; for chronic nephritis, 39.7, a drop from 42.5.. Streptococcic sore throat, including scarlet fever, took 23 lives compared with 36 in 1947. The chief adverse factor, the health department reported, was the continuous increase in deaths from cirrhosis of the liver. These numbered 2,454 in 1948, setting a death rate of 16.8 per 100,000 persons, the highest since 1912. There were 50 deaths from measles compared with 4 in 1947.

New York City

Brooklyn Psychiatric Society.—The inaugural meeting of the Brooklyn Psychiatric Society, established March 17, will be held April 21, 8:30 p. m. in the auditorium of the Medical Society of the County of Kings. Officers are Dr. Simon Rothenberg, president, and Dr. Morton Hand, secretary-treasurer.

Low Cost Roentgen Examinations.—Experiment.—Low cost chest roentgenograms are now available on Tuesdays and Thursdays at headquarters of the New York Tuberculosis and Health Association, 386 Fourth Avenue (Room 511). The service, available to anyone living or working in Manhattan, the Bronx or on Staten Island, provides roentgenograms for $1. This fee also includes the reading of the roentgenogram and a report to the patient. If preferred, the report may be sent to any designated physician. The service is for an experimental period until May 19.

Center for Psychotherapy.—The Postgraduate Center for Psychotherapy, the training associate of the Institute for Research in Psychotherapy, has been granted a provisional charter from the Board of Regents of the New York State Educational Department. The center offers intensive training for psychiatrists in psychotherapy and also individual courses for general practitioners and nonpsychiatric medical specialists in psychotherapy and psychosomatic medicine. The primary aim of the program is to encourage the development of teams of psychiatrists, psychologists and social workers who can organize and operate community psychiatric clinics. The courses of instruction include practical demonstrations in psychotherapy as well as lectures. Before the psychiatric student completes his training he has had personal experience under supervision in the management of various types of cases. Further information on this program may be obtained by writing to Stephen P. Jewett, M.D., dean, or to Miss Janice Hatcher, registrar, Postgraduate Center for Psychotherapy, Inc., 218 East 70th Street, New York 21.

Personals.—Dr. Mary M. Crawford, medical director of the Federal Reserve Bank of New York, has been appointed a national vice chairman for Cornell University's $12,500,000 Greater Cornell Fund campaign. She is a former president of the Cornell Alumni Association.——Dr. George Baehr, retiring president of the New York Academy of Medicine, has been elected chairman of the board of directors of the Health Insurance Plan of Greater New York, succeeding Dr. Willard C. Rappleye, dean of the Columbia University College of Physicians and Surgeons.——Dr. Condict W. Cutler Jr., director of surgery at the Goldwater Memorial Hospital on Welfare Island, has been elected a trustee of Columbia University.——Dr. Emanuel D. Friedman was a guest of honor at the annual dinner of the Alumni of New York University College of Medicine on February 21 on completion of forty years of continuous teaching at his alma mater.——Dr. Frank E. Adair, Memorial Hospital for the Treatment of Cancer and Allied Diseases, will deliver the Lord Moynihan Lecture in London before the Royal College of Surgeons on March 23, on "Surgical Problems Involving Cancer of the Breast."

TEXAS

Annual Meeting of State Medical Association.—The State Medical Association of Texas will hold its annual meeting in San Antonio May 2-5 with registration headquarters at the Municipal Auditorium. Guest speakers at the general meetings include:

William L. Pressly, Due West, S. C., The Human Side of Medicine.
Willis E. Brown, Little Rock, Ark., Cytologic Technique in the Diagnosis of Uterine Cancer.
Lauren V. Ackerman, St. Louis, Responsibility of the Pathologist in the Diagnosis and Treatment of Cancer.
W. Paul Holbrook, Tucson, Ariz., Problem of Arthritis and Rheumatism.
Gaylord W. Anderson, Minneapolis, Certain Epidemiologic Concepts of Poliomyelitis.
Archibald L. Hoyne, Chicago, Modern Treatment of Meningitis.
John S. Harter, Louisville, Ky., Bronchiectasis.
Cecil Striker, Cincinnati, Diabetes Mellitus—An Orientation.
Samuel F. Marshall, Boston, Surgical Treatment of Peptic Ulcer.
Byrl R. Kirklin, Rochester, Minn., Diaphragmatic Hernia.
Charles I. Johnson, Boston, Intracranial Complications of Otogenic and Rhinogenic Disease.

Section meetings will be held in general practice; medicine and pediatrics; surgery; obstetrics and gynecology; eye, ear, nose and throat; radiology and physical medicine; public health, and pathology. Both scientific and technical exhibits and motion pictures will be shown. Clinical luncheons will be held Wednesday and Thursday, and the President's Reception and Ball will take place Tuesday night. The Woman's Auxiliary will have headquarters at the Menger Hotel. Numerous state medical organizations will hold meetings in conjunction with the state medical association, and alumni and fraternities have scheduled banquets.

UTAH

Cancer Symposium.—The Cancer Teaching Program of the University of Utah College of Medicine, Salt Lake City, and the Bureau of Cancer Control of the State Department of Health will present the Second Annual Cancer Symposium April 25-27. Guest speakers will include Drs. George T. Pack, New York; Charles E. McLennan and Henry S. Kaplan, San Francisco; Rulon W. Rawson, New York, and Howard L. Richarson, Portland, Ore.

WEST VIRGINIA

Meeting of Academy of Ophthalmology and Otolaryngology.—The second annual meeting of the West Virginia Academy of Ophthalmology and Otolaryngology will be held May 13-14 at the Shenandoah Hotel in Martinsburg. Speakers on the scientific program are as follows:

Glen G. Gibson, Philadelphia, Medical and Neurological Ophthalmology.
G. Slaughter Fitz-Hugh, Charlottesville, Facio Maxillary Fractures.
Walter O. Klingman, Charlottesville, Headaches.
Charles T. St. Clair, Bluefield, Allergic Manifestations in the Eye.
James K. Stewart, Wheeling, Experiences with Penicillin in Acute Otitis Media.

The film "Integrated Orbital Implant" will be shown. The annual banquet will be held at the Shenandoah Hotel.

Open Meeting on Health Insurance.—Dr. George F. Lull, Secretary and General Manager of the American Medical Association, Chicago, will be guest speaker at an open meeting in Charleston, April 27, sponsored by the Woman's Auxiliary to the Kanawha Medical Society. His topic will be "What Compulsory Health Insurance Means to the People." The meeting, which will be held at the Daniel Boone Hotel, is expected to draw an attendance in excess of 300 representatives of local civic, service and welfare organizations, as well as representatives of many other professions and businesses and manufacturing organizations in the Kanawha Valley. A round table discussion of the proposed federal compulsory health insurance plan, led by Dr. Lull, will follow the speaking program. The spring meeting of the Auxiliary to the West Virginia State Medical Association has been called for the same day, and it is expected that all county auxiliaries will be represented at the luncheon.

GENERAL

Dr. Spencer to Direct Kress Foundation.—Herbert L. Spencer, Ph.D., president of Bucknell University, Lewisburg, Pa., has resigned to become executive director on July 1 of the Samuel H. Kress Foundation, New York. The Kress Foundation was established in 1929 to "promote the moral, physical and mental welfare, and progress of the human race." In January it gave $8,000,000 to the projected New York University–Bellevue Medical Center (THE JOURNAL, January 29, page 319).

Meetings on Mental Deficiency.—The American Association on Mental Deficiency and the first Pan-American Congress will meet at the Roosevelt Hotel, New Orleans, April 26-30, under the presidency of Dr. Edward J. Humphreys, Trenton, N. J. Section meetings will be held on education, general research and reports, state programs for care and supervision of the mentally deficient, present status and future in the fields of mental deficiency, medicine and psychiatry, education and administration.

Rehabilitation Convention.—The Association for Physical and Mental Rehabilitation will hold its annual convention at the Hotel New Yorker, New York, May 18-21. More than 500 representatives from the nation's Veterans Administration, army, navy and civilian rehabilitation agencies will be present. Mr. Leo Berner, chief corrective therapist of the Bronx veterans hospital, is chairman for the convention. For further information, address H. S. Wettstein, Corrective Therapy Section, Veterans Administration Hospital, Bronx, New York.

Program for Epileptic Children.—Educational and medical programs planned to meet the individual needs of the child with epilepsy and to fit the resources of the community were recommended by the International Council for Exceptional Children at its twenty-seventh annual meeting held in San Francisco, Feb. 27-March 2. A special committee on epilepsy, which met twice last year, will be enlarged this year to carry on a program of public education about epilepsy in order that the attitude of parents of "normal" children will not limit educational opportunities for epileptic children. New organizations to be represented on the committee are the Parent-Teachers Association, the National Rehabilitation Association and the National Association of State Directors of Elementary Education. The council commended the American Epilepsy League for its assistance and cooperation in making the meetings of the special committee possible.

Annual Meeting of Psychosomatic Society.—The American Psychosomatic Society will hold its annual meeting April 30 and May 1 at the Chalfonte-Haddon Hall at Atlantic City under the presidency of Dr. Leon J. Saul, Philadelphia. The program, arranged under the chairmanship of Dr. Roy R. Grinker, Chicago, includes papers on "Emotional Factors in the Precipitation of Diabetic Acidosis" by Drs. Harold Rosen and Theodore Lidz of Baltimore; "The Role of the Unconscious in Gastric Physiology; Experimental Observations" by five physicians from Mount Sinai Hospital, New York, and "Treatment of Psychosomatic Disorders by Nonpsychiatric Physicians" by a group of physicians from the University of Cincinnati. A panel discussion on "The Psychosomatic Aspects of Hypertension" will be held under the chairmanship of Dr. Carl A. Binger, New York. Discussion by one or more physicians will follow presentation of each paper or group of papers.

National Survey to Establish Incidence of Multiple Sclerosis.—The National Multiple Sclerosis Society is conducting a nationwide fact-finding program aimed at obtaining figures on the incidence of multiple sclerosis. The first project was a statistical survey in the city of New Orleans and vicinity conducted on a grant made by the society to Tulane University. The survey has been completed and results are now being tabulated and evaluated. Similar projects are under way in the San Francisco and Denver areas supported by grants made to Stanford University and the University of Colorado. Parallel surveys in cooperation with the U. S. Public Health Service are planned for Minneapolis and Boston, all to be completed this year. It is expected that the survey results will allow a reasonably accurate estimate of the number of multiple sclerosis cases in the United States.

College of Physicians Awards.—The American College of Physicians, meeting in New York March 28-April 1, presented the following awards, in addition to the James D. Bruce Memorial Award (THE JOURNAL, April 9, p. 1014). The John Phillips Memorial Award was given to Dr. Edwin B. Astwood, research professor of medicine at Tufts College Medical School, Boston, for developing "new ways to curb the hyperactive thyroid" and stimulating "a fresh search for the treatment of exophthalmic goiter by medical rather than by surgical means." The Alfred Stengel Memorial Award was given to Dr. James J. Waring, professor of medicine at the University of Colorado School of Medicine, Denver, in recognition "not only of loyalty and service to the college, but also of outstanding influence in the advancement of medical education, practice and research, in the perpetuation of the history and traditions of medicine and medical ethics and in the maintenance of the dignity and efficiency of internal medicine in its relation to public welfare."

Program of International Congress on Rheumatic Diseases.—More than 150 physicians from foreign countries are expected at the International Congress on Rheumatic Diseases to be held at the Waldorf-Astoria, New York, May 30 to June 3. Papers will be presented in the mornings, and afternoon clinics will be held at several of the New York hospitals. Papers have been accepted from the following foreign speakers:

Lord Horder, London, Rheumatism, a National Problem.
Jacques Forestier, Aix-les-Bains, France, Treatment of Progressive Rheumatism with Copper Salts.
Eric Jonsson, Stockholm, Relations between Rheumatic Fever and Rheumatoid Arthritis.
Imre Barsi-Basch, Budapest, Transfusions of Blood from Pregnant Women in Patients with Rheumatoid Arthritis.
Prof. S. de Seze, Paris, Procaine Infiltration in Painful Musculoskeletal Disorders.
Svend Clemmesen, Copenhagen, Statistical Analysis of 1000 Cases of Rheumatoid Arthritis in Relation to Insidious and Acute Onset, Menopause, Pregnancy, Psoriasis, Ankylosing Spondylitis and Still's Disease.
William Tegner, London, Some Aspects of Psychogenic Rheumatism.
Henrik Seyfarth, Oslo, Muscle Soreness and Myosis as a Symptom of Chronic Overstraining, Especially in Neurotics.
P. Barcelo, Barcelona, Spain, Chronic Polyarthritis and Psoriasis.
Veikko Laine, Heinolan, Finland, Involvement of the Nervous System in Rheumatoid Arthritis.
Fernando H. Ramos, Montevideo, Periarthritis of the Shoulder.

Official languages of the congress will be English, French and Spanish, but instantaneous translations of the scientific papers at the plenary sessions will be made by I. B. M. wireless system. The meeting is open and the registration fee is $10.

Regional Conferences on Local Health Units.—The National Advisory Committee on Local Health Units of the National Health Council has planned the third and fourth in a series of regional conferences on local health units. The two conferences currently planned are one in Kansas City, Mo., April 20-21, to include Arkansas, Kansas, Louisiana, Missouri and Oklahoma and a second in Omaha, Neb., April 25-27, to include Iowa, Minnesota, Nebraska, North Dakota and South Dakota. The conferences will feature group discussions and group decisions as in the case of two earlier conferences in Mitchell, Ind., and Salt Lake City. State teams of ten to fifteen persons, representing a cross section of lay and professional interest in the development of more adequate local health services, will be selected by the respective state health officers. Resource persons for the conferences will be furnished by such national agencies as the American Heart Association and the American Public Health Association, in addition to the National Health Council. The primary purpose of the national conferences that have been held or planned is to extend coverage by local full time protective health services to every person in the United States and to increase the quality of existing services.

Joint Annual Meetings of Tuberculosis Societies.—The National Tuberculosis Association, the American Trudeau Society and the National Conference of Tuberculosis Secretaries will hold joint annual meetings at the Hotel Book-Cadillac, Detroit, May 2-6. Several panel discussions and symposiums are included in the program:

MEDICAL SECTION

Streptomycin and Tuberculosis, Dumont Clark, Denver, chairman.
Symposium on Extrapulmonary Tuberculosis, John K. Lattimer, New York, and others.
Laboratory and Research, Guy P. Youmans, Chicago, chairman.
Non-Tuberculosis Diseases, Paul H. Holinger, Chicago, chairman.
Symposium on Segmental Bronchopulmonary Anatomy, Chevalier L. Jackson, Philadelphia, and Edward M. Kent, Pittsburgh.
Surgery, Paul C. Samson, Oakland, Calif., chairman.

PUBLIC HEALTH SECTION

Analysis and Evaluation of a Tuberculosis Control Program, Ira V. Hiscock, Sc.D., New Haven, Conn., chairman.
Tuberculosis Leadership in Health Education—Can It Be Maintained? Iago Galdston, New York, chairman.
Spotlighting the Patient and His Family, N. Stanley Lincoln, Ithaca, N. Y., chairman.
Basic Community Organization, James W. Parker, Detroit, chairman.

The presidential addresses will be delivered Tuesday evening by Dr. Herbert L. Mantz, Kansas City, Mo., of the National Tuberculosis Association; Dr. H. Corwin Hinshaw, Rochester, Minn., of the American Trudeau Society, and Charles Kurtzhalz, Philadelphia, of the National Conference of Tuberculosis Secretaries.

FOREIGN

French Congress of Gynecology.—The thirteenth French Congress of Gynecology will be held in Biarritz June 7-11 under the presidency of Dr. Marcel Senechal of Paris. Among the speakers will be Drs. Andre Binet, professor of gynecology of the Faculty of Nancy; Raoul Palmer and Paul Ulrich, both of Paris. Membership fees have been reduced to 1,000 francs. Registration must be made before May 1 to the treasurer, Dr. A. Guillemin, 21 Avenue d'Eylau, Paris-XVI^me.

At the close of the French congress the society will organize an International Congress of Gynecology to meet in Paris June 23-27, 1951. At this meeting a series of conferences will be held by the eminent gynecologists of various nations who will discuss gynecologic diagnosis and therapy. General secretary in charge of scientific papers will be Dr. Claude Beclère of Paris; general secretary in charge of organization of the congress will be Dr. Maurice Fabre of Paris. Address all inquiries to Dr. Maurice Fabre 1, rue Jules-Lefebvre, Paris (IX).

Marriages

HARRY ALBERT HANSON, Albert Lea, Minn., to Miss Dorothy Harriet Williams in Rochester, N. Y., February 5.

JOHN WILLIAM BAIRD, Henderson, Tenn., to Miss Florence De Luca of Greenwich, Conn., in Boston, February 7.

RALPH WOODWORTH HASWELL, Newport News, Va., to Miss Ruth Edna Emery in Williamson, N. Y., December 31.

ROBERT E. NELSON, Brooklyn, to Miss Mary E. Rostzinko of Bangor, Me., in Merrick, N. Y., February 26.

EDGAR LOUIS LIPTON, West Los Angeles, Calif., to Miss Marie Lucile Belk of Goldsboro, N. C., February 19.

ROBERT LEON WILLIAMS, Albany, N. Y., to Miss Shirley Glenn Miller of Warrensburg, February 5.

THOMAS HENRY MERCER Jr., Oak Park, Ill., to Dr. Jeanne Emily Kehoe, Chicago, February 12.

MAX J. FISCHER to Mrs. Joan Kaufman Nathan, both of Washington, D. C., February 24.

LYMAN B. HOLLINGSWORTH, Boise, Idaho, to Mrs. Barbara Butler of Seattle, February 26.

AARON WEISBERG, Brooklyn, to Miss Ruth Mintz of Boston, February 5.

Deaths

Gilbert Cottam ✠ Pierre, S. D.; born in Manchester, England, Aug. 2, 1873; Marion-Sims College of Medicine, St. Louis, 1893; from 1943 to July 1948 superintendent of the South Dakota State Board of Health; member of the House of Delegates of the American Medical Association in 1924; past president of the South Dakota State Medical Association and the Sioux Valley Medical Association; member of the Western Surgical Association, Minneapolis Surgical Society, Minnesota Pathological Society and the American Trudeau Society; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; served overseas during World War I; formerly on the staffs of McKennan and Sioux Valley hospitals in Sioux Falls; served as editor of the *Bulletin of the Hennepin County (Minn.) Medical Society*, on the editorial board of the *Journal Lancet* and as associate editor of *Minnesota Medicine;* died March 4, aged 75, of terminal pneumonia and chronic myocarditis.

John Lucius McGehee ✠ Memphis, Tenn.; born in Como, Miss., Jan. 2, 1879; Memphis (Tenn.) Hospital Medical College, 1901; formerly professor of surgery at the University of Tennessee College of Medicine; member of the founders group of the American Board of Surgery; past vice president of the Southern Surgical Association; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; served during World War I; on the staffs of John Gaston Hospital and Baptist Hospital, where he died February 16, aged 70, of acute pulmonary edema, bronchial asthma and chronic emphysema.

Philip Ray Appel ✠ Detroit; Detroit College of Medicine and Surgery, 1934; died February 8, aged 39, of coronary thrombosis.

Leo Awotin ✠ Chicago; Indiana University School of Medicine, Indianapolis, 1916; died February 11, aged 73, of arteriosclerosis and coronary occlusion.

Lewis Warner Beery, Canal Winchester, Ohio; Long Island College Hospital, Brooklyn, 1878; president of the Peoples Bank; died in the Grant Hospital, Columbus, January 24, aged 97, of nephritis.

Cleo D. Bell ✠ Pittsburg, Kan.; University of Kansas School of Medicine, Kansas City, Kan., 1931; member of the American Society of Anesthetists; served overseas during World War II; affiliated with Mount Carmel Hospital; died January 16, aged 45, of heart disease.

Oswin W. Berky, Bally, Pa.; Medico-Chirurgical College of Philadelphia, 1901; served as burgess, postmaster, bank director and school director; affiliated with the Sacred Heart Hospital, Allentown; died in the Allentown Hospital January 16, aged 73, of hypostatic pulmonary edema.

Frances Sage Bradley, Washington, D. C.; Cornell University Medical College, New York, 1899; during World War I established a children's bureau in France under the supervision of the American Red Cross; formerly a special agent for the U. S. Children's Bureau, serving as director of the bureau of child hygiene of the Arkansas State Board of Health; served as director of the child welfare division of the State Board of Health of Montana; died February 11, aged 82, of uremia.

Russell George Brando, Detroit; Detroit College of Medicine and Surgery, 1927; member of the American Medical Association; died January 3, aged 49, of coronary disease.

Charles Percy Brown, El Paso, Texas; Rush Medical College, Chicago, 1902; member of the American Medical Association; for two years secretary of the Southwestern Medical Association; served during World War I; died recently, aged 73, of arteriosclerosis.

Leroy Capehart, Chattanooga, Tenn.; University of West Tennessee College of Medicine and Surgery, Memphis, 1918; died in the Collins Chapel Connectional Hospital, Memphis, January 23, aged 55, of uremia.

Thomas Joseph Carney ✠ Alma, Mich.; Long Island College Hospital, Brooklyn, 1898; fellow of the American College of Surgeons; part owner of the Carney-Wilcox-Miller Hospital; formerly mayor of Alma; died January 3, aged 79, of arteriosclerotic heart disease and cerebral hemorrhage with left hemiplegia.

William T. Collum, Red Bay, Ala.; Memphis (Tenn.) Hospital Medical College, 1905; died in North Mississippi Community Hospital, Tupelo, Miss., January 14, aged 71.

William Duncan Crosby ✠ Louisville, Ky.; University of Louisville School of Medicine, 1938; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; associate in surgery at his alma mater; served overseas during World War II; on the the staffs of Norton Memorial Infirmary, Kentucky Baptist Hospital and St. Joseph's Infirmary; died January 11, aged 35, of coronary occlusion.

Edward Cussler ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1904; assistant professor of clinical medicine at Cornell University Medical College; affiliated with the New York Hospital-Westchester Division in White Plains and the New York Hospital; served in France during World War I; died suddenly, February 2, aged 66, of coronary thrombosis.

William Everts Downing, Clovis, Calif.; Cooper Medical College, San Francisco, 1903; died January 28, aged 68.

Frederick Arthur Drake, Lanesboro, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1896; member of the American Medical Association; formerly mayor of the village, on the school board and village health officer; died January 31, aged 78, of coronary occlusion.

Howard Justin Driscoll, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1931; served during World War II; affiliated with Fitzgerald Mercy Hospital, Darby; died January 26, aged 43, of coronary occlusion.

Thomas Balfour Dunn ✠ Berkeley, Calif.; University of California Medical School, San Francisco, 1916; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; at one time an officer in the regular navy; lecturer in tropical medicine at the University of California Medical School; served on the staffs of the Samuel Merritt, Peralta and Providence hospitals in Oakland; died in Fresno, December 28, aged 62.

Dwight Molyneaux Ervin, San Francisco; University of Cincinnati College of Medicine, 1917; died in Southern Pacific Hospital January 12, aged 63, of glioblastoma.

Orris Orville Force, Monrovia, Calif.; Northwestern University Medical School, Chicago, 1901; died January 29, aged 85, of cerebral thrombosis.

Herbert Lentz Freeland ✠ Lieutenant Colonel, U. S. Army, retired, Pasadena, Calif.; St. Louis University School of Medicine, 1906; served during World War I; entered the medical corps of the U. S. Army in 1917 as a first lieutenant; promoted through the various grades to that of lieutenant colonel in 1937; retired on July 30, 1940 for disability in line of duty; died January 11, aged 72, of heart disease.

Leo William Fulton Jr., Beggs, Okla.; St. Louis University School of Medicine, 1906; died December 4, aged 66.

Charles Joseph Carroll Gillon ✠ Taunton, Mass.; Harvard Medical School, Boston, 1915; served during World War I; on the staffs of the Morton and Taunton State hospitals; died January 15, aged 59, of cerebral hemorrhage.

John Douglas Graham, Devils Lake, N. D.; University of Toronto Faculty of Medicine, Toronto, Canada, 1923; member of the American Medical Association; member of the board of education; affiliated with Mercy Hospital, where he died January 26, aged 47, of cerebral thrombosis and myocardial infarction.

John Francis Grant ✠ Long Beach, Calif.; Northwestern University Medical School, Chicago, 1917; affiliated with Community Hospital and Seaside Memorial Hospital, where he died January 18, aged 57, of coronary thrombosis and uremia.

David Eugene Harriman, York Village, Me.; University of Vermont College of Medicine, Burlington, 1898; member of the American Medeical Association and the Massachusetts Medical Society; died January 18, aged 74, of coronary disease.

Charles Bonnell Hatfield, Bloomdale, Ohio; Kentucky School of Medicine, Louisville, 1893; died January 12, aged 87, of heart disease.

George Roberts Hetrich, Birdsboro, Pa.; Jefferson Medical College of Philadelphia, 1923; member of the American Medical Association; affiliated with St. Joseph's and Reading hospitals, in Reading; died January 25, aged 55, of bronchogenic carcinoma of the lungs.

Henry Hulst, Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888; specialist certified by the American Board of Radiology, Inc.; member of the American Roentgen Ray Society, of which he had been past president, and the American College of Radiology; died January 2, aged 89, of cerebral thrombosis.

Frank Hyde, Eminence, Mo.; Marion-Sims College of Medicine, St. Louis, 1895; member of the American Medical Association; president of the Carter-Shannon Counties Medical Society; served as mayor, and as president of the school board; died in Poplar Bluff (Mo.) Hospital January 9, aged 77, of coronary embolism.

William Thomas Johnson, Corvallis, Ore.; St. Louis University School of Medicine, 1907; member of the American Medical Association; past president of the Oregon State Medical Society; served as city and county health officer, mayor and state representative; on the staff of the Good Samaritan Hospital; died in Waldport, December 19, aged 72, of coronary occlusion.

Robert Joseph Kearns, Spokane, Wash.; Northwestern University Medical School, Chicago, 1903; member of the American Medical Association; died in the Sacred Heart Hospital January 1, aged 73, of cerebral hemorrhage.

Ralph Burnsell Kettlewell, Sauk Centre, Minn.; University of Minnesota Medical School, Minneapolis, 1932; member of the American Medical Association; served during World War II; died in the Abbott Hospital, Minneapolis, January 1, aged 45, of coronary thrombosis.

Donald H. Leeper, Hiddenite, N. C.; North Carolina Medical College, Charlotte, 1906; died in the Davis Hospital, Statesville, January 19, aged 69, of cancer of the colon.

Leonard Warren Levine ✠ Ellington, Conn.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1937; past president of the Tolland County Medical Society; county jail physician; died in the Rockville (Conn.) City Hospital January 2, aged 35, of coronary thrombosis.

Francis H. Liesen, Quincy, Ill.; Fort Wayne (Ind.) College of Medicine, 1897; died in St. Mary's Hospital January 18, aged 77, of anthrax and myocardial infarct.

Robert Clarence Lowry, Boyle, Miss. (licensed in Mississippi in 1907); member of the American Medical Association; died January 12, aged 68, of thrombosis.

Edward Ames Lyon, Chicago; Rush Medical College, Chicago, 1896; died January 10, aged 77, of coronary thrombosis.

Alexander Edwin McCornack ✠ Elgin, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; affiliated with St. Joseph's Hospital and the Sherman Hospital, where he died January 26, aged 63, of coronary artery disease.

John McIntyre, Chicago; Jenner Medical College, Chicago, 1913; died in Cook County Hospital January 15, aged 92, of carcinoma of the palate.

Howard James Maldeis, Baltimore; University of Maryland School of Medicine, Baltimore, 1903; member of the American Medical Association; associate professor of medical jurisprudence at his alma mater; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; chief medical examiner of Maryland; affiliated with St. Joseph's Hospital, Franklin Square Hospital and University Hospital, where he died January 15, aged 69, of carcinoma of the pancreas.

Frank Lloyd Matson, Wellsburg, W. Va.; University of Louisville (Ky.) Medical Department, 1906; member of the American Medical Association; secretary of the Brook County Medical Society; died January 2, aged 70, of coronary thrombosis.

Louis Morgan Mooney ✠ New York; University and Bellevue Hospital Medical College, New York, 1899; served on the staffs of Polyclinic, St. Elizabeth and Misericordia hospitals; died January 19, aged 88, of arteriosclerosis.

Myron Brill Morris, Staten Island, N. Y.; Syracuse University College of Medicine, 1904; affiliated with St. Vincent's Hospital, where he died January 4, aged 68, of generalized arteriosclerosis.

William Atwood Mowry ✠ Madison, Wis.; Northwestern University Medical School, Chicago, 1910; clinical professor of medicine at the University of Wisconsin Medical School; specialist certified by the American Board of Internal Medicine; past president of the Chicago Society of Allergy; affiliated with the State of Wisconsin General Hospital; died January 8, aged 68, of hypertension and arteriosclerotic heart disease.

William V. Nelson ✠ Milwaukee; Milwaukee Medical College, 1905; formerly secretary of the Milwaukee County Medical Society; served on the staff of St. Luke's Hospital; died January 14, aged 68, of coronary thrombosis.

Michael J. Nestor ✠ Providence, R. I.; College of Physicians and Surgeons, Baltimore, 1905; past president and treasurer of the Rhode Island Public Health Association; city registrar and superintendent of the city health department for many years; served on the staffs of the Rhode Island Hospital, St. Joseph's Hospital and Providence Lying-In Hospital; member of the American Public Health Association; died in the Charles V. Chapin Hospital January 9, aged 72, of cerebral hemorrhage.

Clarence Willard Olson, Arcadia, Fla.; University of Illinois College of Medicine, Chicago, 1917; resident physician at the Florida State Hospital; died January 14, aged 54, of coronary occlusion, diabetes mellitus, pneumonia and fracture of clavicle and ribs due to an automobile accident.

Michael Francis O'Shea, Staten Island, N. Y.; Bellevue Hospital Medical College, New York, 1898; died January 1, aged 77.

Orlando Francis Partridge, Mattoon, Wis.; Milwaukee Medical College, 1896; member of the American Medical Association; died in Shawano, December 29, aged 76, of chronic myocarditis with decompensation.

Albert Edward Peart, St. Louis; St. Louis College of Physicians and Surgeons, 1910; died in the City Hospital January 21, aged 76.

Clarence Eugene Peery ✠ Majestic, Ky.; Loyola University School of Medicine, Chicago, 1918; died in McMinnville, Tenn., February 2, aged 57, of intestinal obstruction.

John Ralph Pinion, Caruthersville, Mo.; University of Missouri School of Medicine, Columbia, 1909; member of the American Medical Association; died January 12, aged 60, of coronary thrombosis following operation for appendicitis.

Alfred Carlyle Prentice ✠ Endicott, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1901; member of the House of Delegates of the American Medical Association in 1920; at various times affiliated with Wilson Memorial Hospital, Johnson City, Vanderbilt Clinic, French Hospital, Erlanger Home for Crippled Children and the Baptist Home for the Aged in New York; on the staff of the Ideal Hospital; died in Packer Hospital, Sayre, Pa.; January 13, aged 73, of acute pulmonary edema.

Leonard Eugene Ragsdale, Williamsport, Tenn.; Bellevue Hospital Medical College, New York, 1897; member of the American Medical Association; past president of the Middle Tennessee Medical Society and the Maury County Medical Society; formerly superintendent of the Tennessee Home for Feebleminded and the Central State Hospital in Nashville; died January 23, aged 73.

Michael Napoleon Ratzan, Brooklyn; Medico-Chirurgical College of Philadelphia, 1906; affiliated with the Unity, Crown Heights and Williamsburg hospitals; died January 20, aged 67, of pulmonary embolus.

Eduard Cecil Reynolds, Independence, Kan.; Bennett Medical College, Chicago, 1907; died suddenly, January 10, aged 72, of coronary occlusion.

George Nelson Richmond, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the American Medical Association; affiliated with Presbyterian and University of Pennsylvania hospitals; died January 9, aged 79, of diabetes mellitus.

Herbert Ewing Riddel, Sarasota, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1898; served during World War I and was awarded the Purple Heart; died January 4, aged 74, of abdominal aneurysm.

Joseph Franklin Roe, Binghamton, N. Y.; Cleveland Medical College, 1894; formerly member of the city planning commission and the board of managers of the City Hospital; died January 8, aged 77, of coronary thrombosis.

Abraham H. Salzberg, Brooklyn; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1922; specialist certified by the American Board of Obstetrics and Gynecology; member of the American Medical Association; fellow of the American College of Surgeons; on the staff of Jewish Hospital; died February 4, aged 51, of coronary occlusion.

David Gentner Sampson ✠ Lisbon, N. D.; Kansas City (Mo.) Hahnemann Medical College, 1914; served during World War I; for many years district physician at Pedro Miguel, Canal Zone; died January 13, aged 57, of coronary thrombosis.

Frank E. Selover, Saginaw, Ore.; University of Oregon Medical School, Portland, 1897; died January 4, aged 76, of arteriosclerosis and bronchopneumonia.

Robert George Shaw, Detroit; Detroit College of Medicine, 1907; member of the American Medical Association; member of the staff of St. Mary's Hospital, where he died January 20, aged 82, of generalized arteriosclerosis.

Harold Koch Shawan ✠ Detroit; Western Reserve University Medical Department, Cleveland, 1909; fellow of the American College of Surgeons; professor of clinical surgery at the Wayne University College of Medicine; specialist certified by the American Board of Surgery; affiliated with Grace Hospital, City of Detroit Receiving Hospital, Highland Park (Mich.) Hospital and the St. Francis Hospital in Hamtramck; died January 11, aged 65, of acute coronary thrombosis.

William Reynolds Shetterly, Brooklyn; Medical College of Ohio, Cincinnati, 1890; member of the American Medical Association; consultant at Lutheran Hospital; formerly on the staffs of the Brooklyn and Brooklyn Eye and Ear hospitals; died in Long Island College Hospital January 7, aged 86, of cerebral thrombosis.

Eugene Wesley Shrader, Moberly, Mo.; Missouri Medical College, St. Louis, 1895; for many years president and secretary of the Randolph County Medical Society; served during World War I and as draft medical examiner during World War II; for two terms county coroner; died January 14, aged 75, of cardiorenal insufficiency and arteriosclerosis.

John Gabrile Siddens, Morgantown, Ky.; Barnes Medical College, St. Louis, 1902; served during World War I; died in the City Hospital, Bowling Green, Ky., January 9, aged 76, of pneumonia.

Lewis Franklin Siegler, Philadelphia; Jefferson Medical College of Philadelphia, 1886; formerly health officer of Lancaster, Pa.; died January 29, aged 82, of bronchopneumonia.

Maurice Silverman ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1924; certified by the National Board of Medical Examiners; served during World War II; died January 20, aged 48, of lymphosarcoma of the spleen.

Maurice Theodore Sloane, Philadelphia; Medico-Chirurgical College of Philadelphia, 1914; member of the American Medical Association; medical adviser to the Veterans Administration; served during World War I; formerly on the staffs of Presbyterian and Woman's hospitals; died January 15, aged 57, of coronary thrombosis.

LIEUT. COMDR. CECIL C. WELCH (MC) U. S. Navy, 1904-1945

LIEUT. (JG) PARLEY D. THOMPSON (MC) U. S. N., 1919-1945

Benjamin Clinton Smith ✠ Hillsboro, Texas; University of Texas School of Medicine, Galveston, 1909; served during World War I; in 1933 vice president of the State Medical Association of Texas; served as president of the Hill County Medical Society and the Twelfth District Medical Society; died January 11, aged 73, of coronary occlusion.

James Edward Smoot, Concord, N. C.; Baltimore Medical College, 1893; member of the American Medical Association; died in the Cabarrus County Hospital January 17, aged 81, of coronary thrombosis.

Charles Edward Spivey ✠ Hamburg, Ark.; Baylor University College of Medicine, Dallas, 1910; superintendent of the Crossett (Ark.) Hospital from 1920 to 1944; died January 13, aged 70, of hypertensive heart disease.

William H. Stephens, Davenport, Iowa; Bennett Medical College, Chicago, 1883; died January 12, aged 90, of coronary thrombosis.

Patrick Alexander Sullivan, Chicago; Rush Medical College, Chicago, 1897; died in St. Elizabeth Hospital January 29, aged 82, of coronary heart disease.

Gilbert Julius Van der Smissen, New York; Columbia University College of Physicians and Surgeons, New York, 1895; member of the American Medical Association; served on the staff of Lenox Hill Hospital; staff physician to the personnel at the New York Zoological Park; died January 20, aged 75, of cerebral hemorrhage.

Albert August Watts ✠ Gary, Ind.; Chicago College of Medicine and Surgery, 1915; formerly county coroner; served during World War I; on the staff of the Mercy and Methodist hospitals; died February 19, aged 61, of chronic myocarditis and virus pneumonia.

Elizabeth Marie Weaver, Claremont, Calif.; Cleveland College of Physicians and Surgeons, medical department of Ohio Wesleyan University, 1902; for many years practiced in Akron, Ohio, where she was on the staff of City Hospital; died in Pomona, January 12, aged 77, of cerebral hemorrhage.

Louise Whitman Farnam Wilson, Henfield, Sussex, England; Yale University School of Medicine, New Haven, 1920; certified by the National Board of Medical Examiners; formerly a medical missionary in China; died January 21, aged 57, of carcinoma.

KILLED IN ACTION

Cecil Charles Welch ✠ Surgeon, Lieutenant Commander, U. S. Navy, White, S. D.; Northwestern University Medical School, Chicago, 1928; member of the Radiological Society of North America; accepted the commission in the medical corps of the U. S. Navy in July 1927; interned at the U. S. Naval Hospital in Chelsea, Mass.; served in the Manila Bay area at the time of its capitulation to the Japanese and was later reported as a prisoner of war by the prisoner of war information bureau, via Geneva; died while a prisoner of war of the Japanese, January 1945, aged 40, aboard a Japanese prison ship.

Parley Dale Thompson, Acting Assistant Surgeon, Lieutenant (jg), U. S. Navy, Sandy, Utah; Temple University School of Medicine, Philadelphia, 1943; interned at the Naval Hospital in Philadelphia, with supplementary training at St. Vincent's Hospital; in October 1944 was assigned to duty as medical officer on the new U. S. S. *Drexler* in Boston; early in 1945 sailed for action in the Pacific; was posthumously presented with the Navy Cross "for extraordinary heroism as a medical officer on board the U. S. S. *Drexler* when that vessel was sunk by Japanese suicide planes in the vicinity of Okinawa, Ruykyu Islands," May 28, 1945, aged 26.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 26, 1949.

Free Medical Treatment for Foreign Visitors

An extraordinary provision of the National Health Service extends free treatment to foreigners visiting this country. A leaflet given to visitors arriving at British ports reads: "The National Health Service will provide you with all medical, dental and nursing care. Everyone—including visitors to this country, whether of British nationality or not—can use all or any complete part of it. There are no charges except for a few special items. And no insurance qualifications are necessary." It is stated in the press that news of this British service has got around France and other countries. Free National Health Service, dentures, spectacles and even operations may be luring cross-Channel trippers to Britain. But the insanity of producing this last result seems to have dawned on our socialist rulers. The Secretary of the British Medical Association reports that news has reached him, indirectly and not officially, that the Ministry has changed its view on the treatment of visitors from overseas. It has now made a rule that the benefits of the National Health Service do not extend to overseas visitors, whether foreign nationals or citizens of the Commonwealth or Colonies, if those visitors come to the country for the specific purpose of using the service. If, on the other hand, they should fall ill whilst here on a visit, they are entitled to use the National Health Service. But the difficulty arises to determine whether the visitor came to the country for the purpose of obtaining medical treatment or not. The *British Medical Journal* raises a legal point. Either the Act does or does not entitle foreigners to use the National Health Service. If it does, then a Government Department cannot make rules denying them the service. If, on the other hand, the Act does not entitle foreigners to use the service, then the law is being broken by offering the service to any foreigner.

Bill to Protect Children Against Milk Infected with Tubercle Bacilli

A bill to insure greater freedom of children's milk from the danger of tuberculosis passed its second reading in the House of Commons. In moving this the Parliamentary Secretary to the Ministry of Food, Dr. Edith Summerskill, said that it would have the effect of reducing the incidence of tuberculosis, disablement and even death. A recent survey revealed that the number of deaths from milk infected by tubercle bacilli was 15,000 a year, and many more thousands were crippled. So far as the child population is concerned the percentage was ten times greater in the rural areas, where more milk was drunk than in London. The bill limited the sale of milk, in areas to be specified, to classes of milk which were specially designated. Restrictions would also apply to milk supplied under welfare and school milk schemes. The policy would be in the first place to apply orders to groups in large urban areas, and then to extend the scheme so far as practicable to rural areas. It might be five or ten years before provisions applied to the country as a whole. Great progress has been made in improving milk in this country, but we cannot be satisfied with the present position.

In the discussion Mr. Hastings, laryngologist, said that 50 per cent of the cases of tuberculous meningitis were due to the bovine variety of the tubercle bacillus and were presumably due to the taking of milk. Another member advanced the argument that unpasteurized milk, even though infected with tubercle bacilli, has the effect of building up a gradual resistance until in time immunity is established. The Minister replied: "That is an argument advanced fifty years ago. Would you give your children milk containing tubercle bacilli in order to immunize them?"

The Midwife as the Doctor's Partner

A Working Party appointed by the Minister of Health to inquire into the reasons for the shortage of midwives and problems of recruitment has presented its report. They describe the midwife as "the practitioner of normal midwifery" and urge that she should attend the mother and baby at least a month after delivery. The limited means of analgesia at her disposal place her at a disadvantage in the face of the growing public demand for relatively painless childbirth, and they ask for an investigation by a committee of a more effective method for her use. Complaints have been received from both health officers and midwives that in the maternity service under the National Health Service general practitioners are tending to take over the whole of antenatal care and relegating midwives to the status of maternity nurses. In some cases midwives do not see the patient until they go to deliver her. Further, pupils are getting no opportunity to see antenatal care. This is entirely contrary to the development of the maternity services intended. A general practitioner should accept his full responsibility for his patient but should not exclude his partner the midwife. Doctor and midwife are complementary to one another and should thus work under the National Health Service.

The Royal College of Surgeons as an Educational Center

The Royal College of Surgeons is playing a much more important part in postgraduate study, for which it has become an international center. At the Hunterian festival dinner the orator, Mr. Henry Souttar, said that in his younger days the college resembled a mausoleum, but now at any time 300 to 400 students could be found there. He expressed the belief that some day the physicians would join with the surgeons in creating a medical academic center for the British Commonwealth. The president of the college, Lord Webb-Johnson, said that since the war it had become clear that the need for further development in teaching is urgent. Lord Nuffield's gift for the foundation of a college of surgical science attached to the college provided residential quarters for students, teachers and research workers. Responding to the toast of the guests, Prof. Lilian Penson spoke of London as richer than any other city in the world for scholarship, research and maintenance of a high tradition in learning.

International Congress of Biochemistry

The first International Congress of Biochemistry will be held at Cambridge August 19 to 24 under the presidency of Prof. A. C. Chibnall. The work has been divided into the following sections: Animal Nutrition and General Metabolism (chairman, Sir Jack Drummond); Microbiologic Chemistry (Miss M. Stephenson); Enzymes and Tissue Metabolism (Prof. R. A. Peters); Proteins (K. Bailey, Ph.D.); Clinical Biochemistry (Prof. E. J. King); Structure and Synthesis of Biologically Important Substances (Prof. A. R. Todd); Cytochemistry (Prof. N. J. Davidson); Biological Pigments—Oxygen Carriers and Oxidizing Catalysts (Prof. D. Keilin); Hormones and Steroids (Prof. F. G. Young); Chemotherapy and Immunochemistry (Sir Charles Harrington); Plant Biochemistry (C. S. Hanes); Industrial Fermentations (J. H. Bunker).

Prof. E. C. Dodds is chairman of the executive committee. Further information may be obtained from the Honorary Organiser of the Congress, 56 Victoria St., London, S.W. 1.

Sir William Hale-White

Sir William Hale-White, who had a prominent position among nineteenth century physicians, particularly as a writer, has died at the age of 91. He was appointed assistant physician to Guy's Hospital in 1885 and remained on its active staff.

During World War I he was consulting physician to war hospitals. A distinguished clinician, teacher and consultant, he was the author of several leading textbooks. "Materia Medica, Pharmacy, Pharmacology and Therapeutics" first appeared in 1892, ran through twenty-six editions and completed its one hundred and thirtieth thousand in 1944. His other books include "A Textbook of General Therapeutics" (1889); a "Textbook of Pharmacology and Therapeutics" (1901), and "Common Affections of the Liver" (1908). In 1923 he published a translation of selected passages from Laennec's "Treatise on Mediate Auscultation." After his retirement from practice he devoted his leisure to the study of medical history and produced a charming book on "Great Doctors of the Nineteenth Century." As a Guy's man he had a great affection for Keats and had the poet's "Anatomical and Physiological Note Book," compiled while he was a student at Guy's Hospital in 1814-1816, reproduced photographically. The final result was a book on "Keats as a Doctor and Patient." He also wrote a notable article on "The Bicentenary of the Birth of Oliver Goldsmith."

ITALY

(From Our Regular Correspondent)

FLORENCE, Feb. 24, 1949.

Leishmaniasis in Italy

Reports on the subject of leishmaniasis in Italy were presented at a meeting on tropical medicine. Professor Pullè, University of Bologna, reported on the cutaneous form of the disease, emphasizing that several thousand cases of this type occur in nearly all the regions of Italy. It is necessary to inform Italian practitioners of the means of combating the disease successfully which have now been perfected. The disease is transmitted by the bite of the sandfly and more precisely by the bite of Phlebotomus papatassii major. The form with the greatest incidence, known also under the name "oriental sore," may be healed, in general, by Professor Flarer's method of treatment.

Professor Girolami of Cagliari gave a report on visceral leishmaniasis in Italy, which was first described by Dr. Cigliano of Forio d' Ischia in a study which remained unknown for many years. In 1880 Professor Cardarelli of the University of Naples studied the disease and described it under the name "infectious splenic pseudoleukemia in children"; in 1905 Pianese discovered the causative agent and observed that it is similar to that of the Indian kala-azar discovered by Leishman and Donovan in 1903-1904. While adults and children may be affected by Indian kala-azar, in Italy the disease is observed most frequently in children less than 5 years of age, commonly of male sex.

The infection is contracted most frequently in the country, in small rural centers and at the periphery of centers with large population. The disease affects mainly agricultural people and has its greatest incidence in the Southern regions and on the big islands. The major foci of infection are at the foot of the major volcanoes, the environs of Naples and Catania. The reasons for this particular distribution are not known. Dogs are the specific reservoir of the virus.

Fever, splenohepatomegaly and hematic changes are of primary importance in the clinical picture; intestinal, hemorrhagic, general and respiratory symptoms may be observed frequently. The fever curve is fairly irregular; the attacks of fever—in general—are of short duration and may recur within twenty-four hours.

The changes of the blood are characterized by the presence of constant oligochromemia, oligocythemia and leukopenia with relative lymphocytosis. In the bone marrow one may observe cellular pictures which vary according to the individual patient: hemocytoplastic or lymphocytotic or aplastic bone marrow.

Leishmaniasis may be associated with other diseases such as pulmonary tuberculosis and brucellosis. Diagnosis by clinical features may in addition be established by the demonstration of the specific parasite in the bone marrow or in the spleen, in the hepatic juice or in the circulating blood.

The Italian school, with Di Cristina, Caronia and Castellani, has made great contributions to the progress in treatment of visceral leishmaniasis. It is based on the specific chemotherapeutic action of antimony, which may be employed in the form of antimony potassium tartrate with highly satisfactory results.

Congress of Orthopedists and Traumatologists

The Italian Association of Orthopedists and Traumatologists held its twenty-third national congress in Bologna. Reports were presented on "Reparative Surgery of the Hand" and "Treatment of Static Changes of the Plantar Arch."

Professor Marcer of Parma, who reported on the first subject, pointed out the technical difficulty involved in reparative surgical treatment of the hand; the procedure often is difficult and disagreeable, and hence may be neglected frequently. Operative success often depends on many small but important technical details; the operation requires the most perfect asepsis, an "atraumatic" technic and constant functional reeducation. He described the methods of surgical repair of the cutaneous lesions and of the bone lesions of the hand besides those of the joints and recalled the various interventions for the cure of pseudarthrosis of the scaphoid to correct camptodactylia and for surgical treatment of habitual dislocation of the first carpometacarpal joint. He then described the reparative surgical treatment of tendon lesions of the hand, recalling the various methods of tendon transplants and grafts with the modern technic suggested by Bunnel and Iselin.

Professor Albanese, of Sampierdarena, reported on the treatment of static changes of the plantar arch, distinguishing between talipes cavus and flatfoot. The speaker established some definite rules of treatment which may be summarized as follows: (*a*) to observe the manifestations of incomplete physiologic evolution, but to refrain from intervention; (*b*) early intervention in an attempt to modify the skeletal conditions not only in the congenital forms but also in those "potential" ones of arrest or of deficient development. Based on these concepts the therapeutic directions have been modified during the last few years as follows: Confidence is always slight with regard to the curative efficiency of orthopedics by which an incomplete action is carried out on the form and orientation of the bones; physical exercises are looked on slightly less favorably; they are still valuable as a means of stimulating the course of some phases of the development and of supporting more energetic therapeutic procedures. Orthopedic and gradual corrective measures are gaining in favor, in analogy to those practiced in other congenital malformations. Among the methods of surgical treatment, dissection or plastic repair of the achilles tendon will still be looked on favorably by the majority of surgeons.

Transplants and grafts of tendons still enjoy much favor among German and Italian authors, but are looked on less favorably in America; they are not taken into consideration in France. Interventions on the skeleton received a noteworthy impulse from recent pathogenetic and anatomicopathologic progress. The majority of the workers favor intervention on the mediotarsal bones and joints, employing conservatory and modeling procedure.

The talipes cavus is a complex deformity consisting in hypertonicity and retraction of the elements supporting the plantar arch, in a want of equilibrium of the power of the various muscular groups and in changes of form and position of the skeletal elements which constitute the planking of the plantar arch.

With regard to surgical treatment there is nearly general consensus that it is necessary to influence the elements support-

ing the plantar arch; with regard to the mode of attack, the concept of intervention by exposure of the surgical field prevails. Among the various routes of access the median enjoys the greatest preference because of ample light; it is free of risk and allows for carrying out the intervention on any element of the planta. The want of muscular equilibrium can be corrected only by means of transplants.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Feb. 29, 1949.

Pathologic Process of Murine Leprosy

A comprehensive description of the evolution of the pathologic process in the murine variety of leprosy has been made at the therapeutic laboratory of the Fundação Paulista contra a Lepra, in São Paulo, by Drs. W. A. Hadler and A. C. Mauri. Working with 265 rats of the McCollum and Wistar strains infected by peritoneal inoculation, they observed and described in detail the successive stages of the evolution of experimental murine leprosy. The peritoneal inoculation originates a generalized infection, with a progressive evolution without tendency to spontaneous regression. As a rule, the lesions begin by proliferation of the reticuloendothelial elements, followed by differentiation of leprous cells, these increasing in number and giving place to diffuse infiltrates which grow in size and then take a delimited form to constitute a leprous nodule. In the peritoneum the alterations have two distinct stages. The first occurs in the peritoneal cavity, where an afflux of blood elements is first observable, followed by reticuloendothelial elements, endothelial macrophages and reticular macrophages. The bacilli are encountered first in the neutrophils and later almost exclusively in the elements of the reticuloendothelial system. The second stage takes place in the peritoneum, where subserous leprous cells are manifest, giving origin to leprous nodules. By the eighth day nodules are visible microscopically, and around the hundred and twentieth day actual tumors are found, accompanied by necrosis and central autolysis. Twenty-four hours after the inoculation it is possible to notice, in the mediastinal and retroperitoneal lymph nodes, areas in which endothelial cells of the lymphatic sinus are mobilized and which contain bacilli in the cytoplasm. The leprous cells increase in number and invade the radial lymphatic sinuses, presenting an irregular form. From the fifth day on, the leprous infiltration takes a rounded form, creating nodular lesions with a great number of bacilli. Until about the fiftieth day the lesions show no alteration, but from then on they begin to increase in size, fusing one with another, with the number of bacilli greatly increased. By the one hundred and fiftieth day a central necrosis begins, followed by autolysis, and about the one hundred and eightieth day more than two thirds of the ganglial tissue is destroyed.

In the liver, an intumescence of the Kupffer cells with bacilli in the cytoplasm is apparent by the tenth day, followed by infiltration of lymphoid cells without bacilli around the interlobular areas and centrolobular veins. Between the twentieth and the twenty-fifth day some histiocytes containing bacilli are found in these infiltrations, which after that begin to form leprous nodules. After the eightieth to one hundredth day the nodules show necrosis and autolysis. In the spleen, two or three days after the inoculation it is already possible to find bacilli in the endothelium of the venous sinuses and the reticular cells of the red pulp. Around the thirtieth day leprous nodules are formed in the white and red pulp of the organ, with few bacilli, the lesions then becoming stationary. There are very slight lesions in the kidneys, where only in the advanced stage (about the one hundred and fiftieth day) a hyaline punctiform degeneration is observable in the parenchyma. The interstitial cells of the lungs and the reticular cells of the bone marrow present bacilli from the very day of the inoculation.

The authors are now beginning to use this method of study as a control test of the efficiency of some of the drugs used to treat human leprosy.

Decline of Diphtheria Mortality

Diphtheria has long been prevalent in Rio de Janeiro. Before the advent of antitoxin treatment the diphtheria mortality was always high, epidemics having been registered in several years. From 1871 to 1890, the average annual mortality rate from the disease was 16.1 per hundred thousand, with rates as high as 29.6, 31.2, 35.3 and 43.4, respectively in 1888, 1887, 1885 and 1883. After treatment with antitoxin was begun this high mortality level was lowered, and during this long period from 1891 to 1940 the annual death rate from diphtheria was almost constantly high, death rates of 5, 7, 9 and 10 per hundred thousand having been registered many times, with the general average of 6.2 per hundred thousand for the whole period of fifty years. Ten years ago, a program of improvement of case reporting and of active immunization was begun, the work having gained momentum in the last four years. During this period the mortality has consistently declined, as is shown by the annual death rates for 1941 and the following years: 10.7, 7.9, 5.9, 6.1, 3.5, 4.5, 4.1 and 4.0. The number of persons actively immunized is increasing, from a little more than 5,000 five years ago to almost 35,000 in 1948. During the present year the health department hopes to decrease the diphtheria mortality to about 2 deaths per hundred thousand. A great effort is being made to concentrate the immunization to children below 5 years of age, among whom about 30 per cent of the deaths from the disease occur.

Rutin as a Treatment of Pemphigus Foliaceus

Dr. Josefino Aleixo of the University of Belo Horizonte published a preliminary report on the use of rutin for the treatment of "wild fire" (pemphigus foliaceus). He was led to try this kind of treatment by the fact that wild fire is now prevalent in the poor farm laborers of the states of São Paulo and Minas Gerais who use little wheat as food, in contradistinction to Syrian immigrants working in towns and using a large amount of wheat in the form of a dish called "kibi." Dr. Aleixo never saw a case of wild fire in these Syrian workers. Starting from the fact that Griffith and Lindauer showed the good results of rutin in cases of capillary fragility, and from the work of J. Kirle, E. Mendes and A. Lindberg, who demonstrated capillary changes in pemphigus foliaceus as a consequence of Rossle's serous inflammation, Dr. Aleixo used rutin, a chromoglucoside extracted from buckwheat. He says that cases of wild fire treated with rutin have shown that the bullous eruption is prevented, and when present it disappears rapidly, a fact that he had never seen with any other treatment.

A Joint Health Committee of the Armed Services

A Joint Health Committee of the Armed Services was recently created, constituted by the three Surgeons General of the Army, the Navy and the Air Force, to establish a common doctrine of action and uniformity of methods and resources. The principal functions of the committee are the establishment of general norms of health for the selection of personnel to the armed forces, the adoption of standard measures of prevention of diseases and of medical and surgical treatment, the standardization of therapeutic resources, the adoption of a common nosologic nomenclature and a uniform system of records, the establishment of a system leading to the common use of all hospitals, clinics and centers of treatment and the organization of a common plan of control of the physical and mental efficiency of the armed services' personnel.

Correspondence

TREATMENT OF ACUTE RENAL INSUFFICIENCY

To the Editor:—Under Correspondence in THE JOURNAL, February 12, page 473, appeared a communication from Dr. Alfred P. Fishman. Dr. Fishman quoted from a paper presented by Daniel Marshall and myself before the Central Society for Clinical Research in Chicago, Oct. 31, 1948, in regard to our management of lower nephron nephrosis. Since our paper was at that time unpublished and since it did not deal at all with management but with the altered renal function in lower nephron nephrosis, Dr. Fishman could not quote correctly either our words or our ideas. (This paper has in the meantime appeared in the *Journal of Laboratory and Clinical Medicine*, **34**: 31 [Jan.] 1949).

We have expressed our ideas on management in a paper which will appear soon in the *Archives of Internal Medicine*. In this report, we explicitly state that once the renal lesion of lower nephron nephrosis is well established, there is no known method for producing diuresis until some degree of healing occurs. For this reason, the aim of treatment should be not to get the damaged kidney to secrete against all odds but instead to keep the patient alive until the tubules recover enough to reverse the retention of excretion products. We have thus, contrary to Dr. Fishman's implications, definitely stressed the spontaneous resolution of the anuria.

Our management involves the maintenance of normal nutrition and the attempt at restoration to normal of the electrolyte composition of the extracellular fluids (and plasma). We have recommended 3 liters of saline plus lactate during the first 24 to 36 hours to rule out oliguria on the basis of dehydration and hyponatremia alone, for in such cases in which the kidneys have not been organically damaged such treatment has been sufficient to initiate a diuresis. With the persistence of the oliguria we administered 1 to 2 liters of saline with lactate daily in order to raise the serum chloride and sodium concentrations toward normal and to allow a slow accumulation of edema fluid. In our more recent cases we have recognized that the administration of even considerable quantities of 0.9 per cent salt solution will not adequately raise the serum sodium concentration and we have therefore utilized daily intravenous injections of 500 cc. of 3 per cent salt solution. This procedure is in agreement with that recently proposed by J. P. Peters (*Surgery* **24**: 568, 1948). On such a regimen, whether because of the dilution effect of the edema fluid or because of the protein-sparing action of the raised serum sodium concentration, the blood urea concentrations have tended to reach a plateau and the patients have felt well. At no time have we advocated large volumes of fluid "to open the kidneys." This unphysiologic phrase, imputed to us by Dr. Fishman, is not our invention.

We find no objection to Dr. Fishman's regimen if it can accomplish what he claims for it without production of edema and with normal electrolyte composition of the serum. However, it has been our experience that edema develops in these patients under any circumstances if food and drink are allowed and that this expanded extracellular fluid has a low sodium and chloride concentration, which can be corrected only by hypertonic salt solution administered of necessity intravenously. It is an illusion to believe that edema from oral or subcutaneous fluid and salt administration is more innocuous than that from intravenous injection. It is not intravenous fluid administration which causes the strain on the heart in these cases but the uremia itself and its accompanying rise in blood pressure. In patients who die in uremia from whatever cause, myocardial failure is usually an important terminal factor whether much or little fluids have been given.

Finally, we agree with Dr. Fishman that many of these patients might recover with any of several treatments, and that the mortality of 80 to 90 per cent reported in the cases involving battle injuries is probably due to complicating factors such as excessive protein breakdown. But we are forced to believe that a management such as ours involving only one death in 12 cases (none in the last 10) has some merit.

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PENICILLIN IN MALARIA

To the Editor:—In his letter concerning penicillin in the treatment of malaria published in THE JOURNAL, March 12, page 734, Dr. Deshmukh comments that had I read a reprint of his article (Deshmukh, P. L.: Treatment of Relapsing Malaria with Specific Antimalarial Drugs in Combination with Penicillin, *Indian M. Gaz.* **82**: 511 [Sept.] 1947). I should not, perhaps, have rushed to your columns with my letter published in THE JOURNAL, Aug. 28, 1948, page 1632. In my letter I stated that there is evidence to prove that penicillin does not affect malaria. After reading his article again, a reprint of which Dr. Deshmukh kindly sent me, I still believe that his conclusions that penicillin acts on the preerythrocytic stage of malaria are unfounded.

Dr. Deshmukh cites 2 cases in support of his thesis. One patient, a woman 34 years old, seen during an acute attack of malaria with a history of a previous attack a year before, was treated with quinine, quinacrine hydrochloride and penicillin, and during the following four months was free of relapses. The other, a 24 year old man who had had "repeated attacks of fever with rigor for the last six months off and on," was similarly treated and had no recurrence during the subsequent three months. He states that 4 other patients who were similarly treated had been followed six to eight weeks without relapse.

The evidence presented is valueless to prove that penicillin was in any way concerned with the absence of relapse during the periods of observation. The first patient had previously experienced a year without an attack of malaria. The attack observed by Dr. Deshmukh may have been a relapse or a new infection. She might have gone another year or longer without further attacks of malaria if no penicillin had been given. The second patient, likewise, might well have experienced more than three months without a relapse without penicillin treatment. As for the 4 other cases cited, the follow-up period of six to eight weeks was far too short for them to be considered. Dr. Deshmukh has no controls in his series. One must have observations on a number of cases and controls, similar in all respects including age, type and duration of infection, and pattern of relapses, differing only in regard to treatment with or without penicillin and followed for a period of many months before any tentative conclusions may be drawn.

During the recent war years a large number of patients with relapsing vivax malaria from the Southwest Pacific area were given various forms of antimalarial therapy and held under observation for periods of four months to a year. Treatment

with quinine, quinacrine, chloroquine, S.N. 6911, or other preparations was followed by relapses within four months in about two thirds of the cases, regardless of preparations used, although chloroquine delayed the relapses longer than the others. The remaining third of the patients failed to relapse during the observation period, regardless of type of therapy. In other words, in any group of cases of vivax malaria, a certain proportion will be experiencing their last relapse, and if the same group is followed for three years, if reinfections are not occurring, malaria will have terminated in nearly all. The supply of preerythrocytic forms will be exhausted.

A number of these patients were given courses of penicillin therapy for conditions other than malaria, during or between relapses of malaria. This group continued to relapse at about the expected rate, indicating that penicillin did not affect the preerythrocytic forms of the parasite.

GEORGE M. SAUNDERS, M.D.
Assistant Professor of Preventive Medicine, Washington University, St. Louis

INTERNSHIPS

To the Editor:—On December 14, 1948, I directed an inquiry to the administrators of the forty-one hospitals in New Jersey offering approved internships. On December 22 I had received twenty-eight replies. Authorities familiar with questionnaires assure me that this represents considerable interest and, perhaps, some emotional drive on the part of the recipients of the questionnaire. There was one direct question: "How many interns do you have under contract for 1949-1950?" The replies indicated that twenty-eight hospitals had 113 interns under contract and 303 internships were approved. On the basis of the replies received it would appear that the hospitals in New Jersey are getting 37¾ per cent of the interns for which they are approved and for which they obviously have need.

The remarks which were volunteered by the officials who responded to the questionnaire were:

We have followed the present method of appointment exactly as outlined. After two years' experience I do not believe it is an efficient method of obtaining interns as far as this hospital is concerned.

We need ten. You are doing just what I threatened to do. We accepted fourteen applicants and got one. The situation is critical.

Normal quota is ten at $100 per month plus maintenance. Very difficult to obtain interns. We advertise in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

I have your letter of December 14 concerning the present system of distribution of interns. Up to this year we have always been successful in securing our quota of interns at this hospital.

This year the situation is what I call disastrous. For the July 1, 1949 class we have one intern signed up; we are short seven interns.

Whether this can be blamed on the method of distribution, or the shortage of medical school graduates I do not know, but the situation we, as a 250 bed hospital, find ourselves in for next year is certainly not encouraging. I understand that practically all hospitals in the state are faced with this acute shortage of interns.

At the present time we have twenty-three interns for twenty-four appointments. Beginning July 1, 1949 we will have seventeen interns for twenty-four appointments.

I am very much opposed to the present procedure of the appointment of interns. The deans of the medical colleges and the American Hospital Association have agreed that intern appointments cannot be made before November 15 of each year and all hospitals make their appointments at the same time. They give the prospective intern seventy-two hours to make up his mind as to which intern appointment he wishes to accept. I feel we should allow the prospective intern the privilege of seeking his internship rather than to a have a number of appointments offered to him at one time. He is swamped with telegrams and even telephone messages at midnight beginning November 15.

I consider that the present system is most unsatisfactory for nonteaching hospitals. No system at all would be better than this.

Obviously the system of procurement and assignment of interns is not satisfactory to the rank and file. I have introduced several resolutions into the House of Delegates in years gone by in an effort to inquire into this defect.

HILTON S. READ, M.D.
The Ventnor Clinic, Atlantic City, N. J.

NOTE.—The letter was referred to the office of the Council on Medical Education and Hospitals, which replies:

To the Editor:—The data furnished by Dr. Read for twenty-eight hospitals in New Jersey are in essential agreement with the statistics presented in the Internship and Residency Number of THE JOURNAL, May 1, 1948, which indicated that the majority of small nonteaching hospitals are having difficulty in filling their internships.

The Uniform Intern Placement Plan was adopted to eliminate the practice of offering appointments to medical students early in their undergraduate course, in some instances as early as the sophomore year. It was the general feeling of medical educators and hospital administrators that if this practice were allowed to continue, the entire system of intern appointments would become chaotic to the point of prejudicing the interests of interns and hospitals alike. The plan does not and cannot assure the participating hospitals a full quota of interns. It is recognized that violations of its regulations exist which tend to undermine general acceptance of the plan. The majority of hospitals, however, have complied with its requirements and when successful in attracting the required number of interns have found the system satisfactory.

Interns have always been attracted to those hospitals which in the opinion of recent graduates provide the best training. It is on the basis of offering a superior program that hospitals must expect to compete for interns.

The basic problem involved is one of supply of interns rather than of distribution. Given the present number of graduates, it is impossible to meet the house staff requirements of all hospitals requesting interns. An increase in the number of hospitals offering two year, rather than one year, internships would of course result in a decreased annual demand, alleviating the problem to some extent. Until this trend has developed to a considerably greater degree, however, it will be necessary for many hospitals to continue to furnish a high level of medical care without relying on interns.

In accordance with the recommendations of the Reference Committee on Medical Education, as adopted by the House of Delegates at the annual meeting June 25, the Council is presently engaged in reviewing all approved internships. It is anticipated that a number of hospitals currently approved will not be able to meet present requirements and approval in these instances will necessarily be discontinued.

Council on Medical Education and Hospitals

LICENSURE OF FOREIGN MEDICAL GRADUATES

(The Committee on Foreign Medical Credentials, an unofficial body sponsored by the Council on Medical Education and Hospitals of the American Medical Association and composed of invited individuals from organizations interested in the problem of foreign physicians, is issuing for the information of the public and the governmental agencies concerned with the licensure of physicians a summary of the problems involved in the licensing of foreign medical graduates and its recommendations for their solution. The membership of the Committee includes individuals from the following organizations:

Advisory Board for Medical Specialties
Association of American Medical Colleges
Council on Medical Education and Hospitals
Department of State (observer)
Federation of State Medical Boards of the United States
Illinois Department of Registration and Education
Institute of Inter-American Affairs
Institute of International Education
W. K. Kellogg Foundation
Minnesota State Board of Medical Examiners
National Board of Medical Examiners
New York State Board of Medical Examiners
New York State Department of Education
Pan American Sanitary Bureau
Rockefeller Foundation
United States Office of Education
Wisconsin State Board of Medical Examiners
World Health Organization
World Medical Association)

The licensure of physicians who have received their medical degrees from foreign institutions seems certain to present a growing problem for the licensing bodies of the forty-eight states, the District of Columbia and the territories and outlying possessions of the United States and for the National Board of Medical Examiners. The unsettled economic and political conditions in many parts of the world have already stimulated many physicians to migrate to the United States, and it may be predicted that the number seeking to migrate will increase in the years ahead. In addition, each year a number of Americans enter foreign medical schools with the expectation of returning to the United States to practice. Some of these students study abroad because they are unable to gain admission to an American medical college, while others do so from choice.

The problem of the physician who has graduated from a foreign medical school promises to confront the public, various legislative bodies and the licensing boards with increasing frequency during the next several years. The problem has important and far reaching implications for the health and safety of the people of the United States. It is important, therefore, that the public be provided with information to serve as the basis for intelligent opinion and that legislative and licensing bodies be prepared to adopt an enlightened policy in deciding questions pertaining to the licensure of foreign-trained physicians

Two basic principles are involved in the licensure of physicians whether they be graduates of domestic or foreign schools. The first principle and one that has long been recognized by all states and nations is the requirement that a physician satisfy a licensing body representing the public as to his competency before he is permitted to practice. This principle is essential for the protection of the public. Without this requirement, the people of a community cannot distinguish those physicians who are competent to provide medical care from those who are not.

Similar requirements for licensure or equivalent certification by an appropriate public agency have been established for the protection of the people in many professional and nonprofessional occupations. Such occupations include architects, dentists, engineers, veterinarians, lawyers, nurses, electricians and plumbers. The principle of licensure by legally created agencies of the state has become so well established in our society that its value and validity cannot be questioned.

The second principle involved is that the training a man has undergone in preparing to enter a profession is a paramount factor in determining the quality of his professional practice. It must be admitted that exceptional men may rise above the limits of their training, but this achievement is frequently accomplished only after years of experience in practice and additional training. To allow an inadequately trained physician to attempt to perfect himself through the mistakes of years of practice is to permit unwarranted and unnecessary abuse of patients who entrust their health and lives to him.

An important corollary of this second principle is that the best assurance of the quality of the training that a physician has received is an intimate knowledge of the faculty, facilities, curriculum and standards of the medical school from which he has graduated. The art and science of conducting examinations has not yet advanced to the point where full reliance can be placed on the results of the type of examinations to which licensing boards are limited by considerations of practicality. Only when the results of such examinations are coupled with an evaluation of the quality of training that a physician has received can a licensing board be reasonably confident that a physician is adequately prepared to assume the responsibilities that are an inevitable part of his practice.

In licensing graduates of American and Canadian schools, the various state licensing boards have for many years had the benefit of the findings of periodic thorough surveys of these schools carried out by the two accrediting bodies, the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges. Some of the state licensing boards supplement this information with investigations of their own, although it is beyond the resources of most boards to inspect periodically all the eighty medical schools in the United States and Canada.

It should be pointed out that the present high standard of medical practice in the United States has been the direct result of the recognition by the licensing boards that evaluation of the school from which a physician graduates is equally important as evaluation of the physician himself. Before this principle was generally recognized, the country was overrun with physicians who, armed with a degree from a low grade school or outright diploma mill, succeeded in one way or another in passing the examinations for licensure. The needless suffering and injury perpetrated by the incompetent and at times fraudulent practices of many of these inadequately trained men constitute a dark chapter in the history of medicine.

While it has been possible for the two accrediting agencies referred to above to maintain current appraisals of the quality of education offered by American and Canadian medical schools, it has been beyond their resources to attempt to maintain a similar inventory of the three hundred or more medical schools in other parts of the world. For many years this was not important because the numbers of physicians migrating to the United States was small and most foreign-trained physicians came from medical schools that were well known in America.

Between 1930 and 1939 two developments occurred that entirely changed the situation. Unsettled and unfavorable conditions abroad prompted large numbers of physicians to migrate to this country. At the same time, internal developments in many countries led to a rapid deterioration in the quality of medical education. This change, which was readily apparent to American physicians traveling abroad in the years immediately prior to the war, was greatly accelerated when these countries became involved in World War II. The pressures of the war reduced the quality of medical education in all countries, including the United States, but in many countries the effect was catastrophic. Faculties were decimated, buildings, libraries and equipment were destroyed or badly damaged, all contact with scientific developments in other countries was interrupted and standards were lowered in an effort to turn out large numbers of physicians to serve the armies of the warring nations. By the end of the war, medical education in other countries, with few exceptions, had degenerated to a degree that was shocking to those who had known these countries in the period up to 1930. While medical education in the United States recovered quickly from the war and is now at

the highest point in its development, unsettled political and economic conditions in many foreign countries have prevented any similar recovery. Even more disturbing is the fact that some foreign countries appear to be committed to educational policies that are so unsound and so inferior that there is serious doubt that satisfactory standards of medical education will be reestablished at any time in the foreseeable future.

It is against this background that the problem of the foreign-trained physicians must be studied. Their complete exclusion from the United States cannot be reconciled with the traditional role of this country as the land of opportunity. The fact that few foreign countries will admit the graduates of American medical schools to practice should not be accepted as a valid reason for pursuing a reciprocal policy. It is well, however, for the people to know that the United States is the most liberal of all countries in licensing physicians who have not graduated from their own schools.

While a policy of complete exclusion cannot be defended, it is clear that until more information can be obtained about the present quality of medical schools abroad, the licensing boards would fail in their responsibility to the public if they did not use the greatest care and discretion in admitting foreign-trained physicians to their examinations.

Detailed current knowledge of foreign medical schools is indispensable for the guidance of state licensing boards in determining which foreign physicians have had sound training. It is essential that the various agencies concerned with this problem unite their resources and devise a satisfactory method for securing this information at the earliest possible date. It will not be an easy task and it is improbable that well documented evaluations can be made of all foreign schools in the same manner as is done for American and Canadian schools. The geographic and physical aspects of the problem alone present great difficulties. International relations will undoubtedly also limit the extent to which such a study can be carried out. One of the greatest difficulties will be to appraise accurately the great changes and fluctuations through which many schools have passed and are continuing to pass.

From such a study, however, it should be possible to derive a list of foreign medical schools which have maintained during specific periods, or are now maintaining, educational programs sufficiently comparable to the training offered by the medical schools of this country to warrant the admission of their graduates to the examinations of the licensing boards of the forty-eight states, the District of Columbia and the territories and outlying possessions of the United States as well as the examinations of the National Board of Medical Examiners.

As an added safeguard it would seem entirely reasonable that, whenever a candidate cannot present evidence to a state licensing board that he is sufficiently familiar with recent scientific advances in medicine, with the practices and customs of American medicine and with the English language, he be required to take additional training in this country before being permitted to appear for examination. There is every reason to believe that the various licensing boards can develop regulations covering these points that will be fair to the foreign graduate and adequate to protect the public.

The American people are today well served by the licensing boards which they have duly constituted by law to protect them from incompetent practitioners of the healing arts. It is to be hoped that the people will continue to have confidence that these licensing bodies are acting for their best interests according to well established principles.

The licensing bodies and the governments to which they are responsible have a heavy obligation to continue their efforts to maintain high standards of medical practice. They must also recognize that the spirit and tradition of America places on them an obligation not to deny the opportunity to practice his profession to any citizen or prospective citizen who can demonstrate satisfactory qualifications as to his professional competence and character.

If the problem of the foreign medical graduate is approached in this spirit, the Committee on Foreign Medical Credentials is confident that it will be solved without lowering the standards of American medicine and in a manner consistent with our national ideals of justice and humanitarianism.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written.* Various Centers. July 15. *Oral.* Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.: *Oral.* Chicago, May 8-14. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part I.* New York City, April 22-23; Atlanta, Ga., April 29-30; Indianapolis, May 6-7 and Denver, May 13-14. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John M. Mitchell, 6 Cushman Rd., Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, October 26. Final date filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Feb. 1950. Sec., Dr. Harry Culver. 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination.* San Francisco, June 20-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mrs. C. Coleman, 117 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

INDIANA: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

KENTUCKY: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

MARYLAND: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MINNESOTA: * Minneapolis, April 19-21. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MISSOURI: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

NEBRASKA: * *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humbie, 1009 State Capitol Building, Lincoln 9.

NEVADA: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Endorsement.* Pinehurst, May 9. *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written,* Grand Forks, July 5-7. *Reciprocity,* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OKLAHOMA: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.
PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.
PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.
RHODE ISLAND:* *Examination.* Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.
SOUTH CAROLINA: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.
SOUTH DAKOTA: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.
TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.
UTAH: *Examination.* Salt Lake City, July. Sec., Dept of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.
VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.
WASHINGTON: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.
WISCONSIN: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.
WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARKANSAS: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.
COLORADO: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.
CONNECTICUT: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.
DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.
FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.
MICHIGAN: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.
MINNESOTA: *Examination.* June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.
OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.
SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.
TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.
WISCONSIN: Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Smallpox: Right of School Board to Exclude Unvaccinated Child.—This was an action for an injunction to restrain the Barren County Board of Health and the Glasgow City Board of Education from enforcing a resolution each had passed requiring all school children to be vaccinated for smallpox or else be excluded from the city schools. From a judgment denying the injunction the plaintiffs appealed to the Court of Appeals of Kentucky.

The plaintiffs first insisted that there was not a case of smallpox in Barren or the surrounding county and that there had not been one for years and years, that there was no reasonable basis for the apprehension of an outbreak of the disease in the county and that therefore vaccination was unnecessary. The answer to this argument, said the Court of Appeals, appears in a prior Kentucky case (*Board of Trustees, etc. v. McMurtry*, 169 Ky. 457) where it was written that the health authorities are not required to wait until an epidemic exists before acting, but it is their duty to adopt timely measures to prevent one. While they may not harass the public by unreasonable or arbitrary regulations, such matters are left to their sound discretion rather than to the whims of laymen. It is too late, said the court, to start vaccinating to prevent the closing of schools after a case of smallpox appears.

The plaintiffs next argued that the school board was without authority to enforce the regulations of the health board requiring vaccinations. The State Board of Health adopted Rule 64 which reads: "No person shall become a member of any public or private school within the jurisdiction of this board as a teacher or scholar without furnishing a certificate from some reputable physician that he or she has become successfully vaccinated within seven years, nor shall such person be permitted to remain a member of such public or private school as a teacher or scholar without being vaccinated at least every seven years." The plaintiffs insist that the legislature has made no provision for the vaccination of school children, that Rule 64 was made by the State Board of Health under its general authority and that the school board was without power to enforce it. They are wrong, said the Court of Appeals. It is provided in the Kentucky statutes that all adults shall procure their own vaccination. Another section provides that all parents, guardians and other persons having the care, custody or control of any minor shall have the minor vaccinated for smallpox within twelve months after birth or after the minor comes under their care, custody and control. Still another section provides that all pupils admitted to the common schools shall comply with the lawful regulations for the government of the schools. Reading these sections together, said the Court of Appeals, we are convinced that the school board had the right to promulgate and enforce its own rules requiring compulsory vaccination of the children or it could enforce, in its own right, such a rule promulgated by either the county or state board of health.

The plaintiffs next contended that compulsory vaccination interferes with the constitutional rights of the children. Many cases, said the Court of Appeals, have held that the state has the authority to refuse children admission to the public schools until they are vaccinated. One of the plaintiffs, however, who was a chiropractor, also argued that his religious and conscientious belief prevented him from subjecting his children to vaccination by injecting foreign substances into the veins and that, consequently, to enforce the resolution of the school board compelling him to have his children vaccinated would interfere with his religious freedom. Religious freedom, said the court, embraces two conceptions, freedom to believe and freedom to act. The first is absolute, but in the nature of things the second cannot be. The constitutional guaranty of religious freedom, concluded the court, does not permit the practice of religious rights dangerous or detrimental to the lives, safety or health of the participants or the public. There may be no interference with the plaintiff's religious belief against vaccination, but he may not endanger the health of the community by refusing to have his daughter vaccinated.

Finally the plaintiffs contended that the two girls involved were not physically fit to undergo vaccination and that it would be detrimental to their health. The medical testimony in the record does not substantiate this claim, said the Court of Appeals. The preponderance of the medical testimony is to the effect that any child physically able to attend school can be vaccinated safely and without injury.

Accordingly the judgment of the trial court denying the requested injunction was sustained. *Mosier v. Barren County Board of Health; Stuart v. Barren County Board of Health, 215 S. W. (2d) 967 (Ky., 1948).*

Medical Motion Pictures

NEW MOTION PICTURE ADDED TO THE A. M. A. LIBRARY

Modern Surgery. 16 mm., black and white, sound, 700 feet (1 reel), showing time fifteen minutes. Produced in 1948 by The March of Time and released to Commercial Theaters under the title "The Case of Mrs. Conrad." Procurable on loan (Service Charge $2) from the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film depicts the story of a surgical operation from the moment the family doctor suggests hospitalization until the patient fully recovers and is discharged. Some of the newer aspects of medical procedure portrayed in the film are hospital plan benefits, preoperative rest, the work of the various medical personnel who aid in the physical examination, recording of the medical history, laboratory tests, electrocardiograms and roentgen examinations. The role of the anesthetist before, during and after the operative procedure is well illustrated. The final scenes show early ambulation and the patient discharged to her home.

Physicians called on to address lay audiences such as service organizations, parent-teachers' associations and other such groups may find this film a useful adjunct in their lectures.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

36:801-986 (Dec.) 1948

*Report of Committee for Evaluation of Anticoagulants in Treatment of Coronary Thrombosis with Myocardial Infarction: Progress Report on Statistical Analysis of First 800 Cases Studied by Committee. I. S. Wright, C. D. Marple and Dorothy F. Beck.—p. 801.

*Some Effects of Quinidine Sulfate on Heart and Circulation in Man. M. I. Ferrer, Réjane M. Harvey, L. Werkö and others.—816.

II. Correlation of Electrocardiographic and Pathologic Findings in Large Anterolateral Infarcts. G. B. Myers, H. A. Klein and T. Hiratzka. —p. 838.

Experimental Study of Acute Pulmonary Arterial Obstruction, with Special Reference to Precordial Electrocardiogram. J. Flasher, H. E. Essex and Arlie R. Barnes.—p. 882.

Oxygen Content of Coronary Venous Blood as Affected by Anoxia and Cytochrome C. J. E. Eckenhoff and J. H. Hafkenschiel.—p. 893.

Portable Electrical Manometer Suitable for Continuous Indication of Peripheral Venous Presures. A. A. Pollack and E. H. Wood.—p. 899.

Can Longitudinal Anatomical Axis of Ventricles be Estimated from the Electrocardiogram? A. Hyman, R. B. Failey and R. Ashman.—p. 906.

Evaluation of Precordial Leads of Electrocardiogram in Obesity. H. L. Jaffe, E. Corday and A. M. Master.—p. 911.

Electrocardiographic Changes During Anthiomaline Treatment of Schistosomiasis. R. M. Suárez, S. Santiago-Stevenson and F. Hernández-Morales.—p. 923.

Anticoagulants in Coronary Thrombosis.—Wright and his associates summarize the results obtained by a preliminary statistical analysis of the first 800 cases studied by the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction: The incidence of deaths and of both thromboembolic and hemorrhage complications has been compared in a "control" series of patients treated by conventional methods alone and in a series of "treated" patients who received anticoagulants (dicumarol,® heparin or both) in addition to conventional therapy. It was found that patients treated with anticoagulant therapy in addition to the conventional forms of therapy experience a death rate and incidence of thromboembolic complications during the first six week period following an attack which are markedly lower than those experienced by patients treated solely by conventional methods. Anticoagulant therapy should be used in all cases of coronary thrombosis with myocardial infarction unless a definite contraindication exists. In the absence of other hemorrhagic states, the hazards from hemorrhage due to anticoagulants are not sufficient to contraindicate their use in the treatment of coronary occlusion providing there are facilities for adequate laboratory and clinical control.

Quinidine Sulfate and Circulation.—Ferrer and his associates discuss the effect of quinidine sulfate on the circulation in subjects with an essentially normal cardiovascular status and in patients with heart disease. Quinidine sulfate, 0.8 Gm. by mouth, was given in a single dose on the basis that this amount represents the maximum effective single oral dose of this drug. An extensive investigation of the circulatory hemodynamics was carried out in 20 patients, by means of the technic involving catheterization of the right side of the heart. Clinical investigation of the blood pressure alone was undertaken in 21 subjects. A fall in arterial blood pressure was found in 12 of the 18 normal subjects, an incidence of 66.7 per cent. The results obtained in 5 of these 12 patients indicate that the fall in arterial blood pressure was unaccompanied by any change in cardiac output or right ventricular pressure. Eighteen of the 23 patients with cardiovascular disease showed a fall in arterial blood pressure, an incidence of 78.3 per cent. It was apparent, however, that in these cardiac patients the subsequent readjustments in the circulation were dependent on the physiologic status of the patient. In patients with normal cardiac output, no change in this determination was measurable. Patients with low cardiac outputs and elevated right ventricular systolic pressures responded with a shift toward more normal values. It is suggested that the fall in arterial blood pressure following use of quinidine is due in large measure to peripheral vasodilatation. Some evidence for an effect on the myocardium is also presented.

American Journal of Clinical Pathology, Baltimore

18:835-920 (Nov.) 1948

Vitamin K Tolerance Test. P. N. Unger, M. Weiner and S. Shapiro. —p. 835.

Electron Microscopic Studies of Globular Proteins in Cerebrospinal Fluid. C. A. Hellwig, R. L. Drake, H. W. Voth and J. E. Bleicher.—p. 852.

Efficiency of Blood Substitution. H. Wallerstein and S. S. Brodie. —p. 857.

Advances in Histopathologic Technic. R. D. Lillie.—p. 867.

Constant Oligospermia and Periodic Oligospermia. B. Zondek, Y. M. Bromberg and Z. Polishuk.—p. 874.

Increased Blood Platelet Clumping in Thromboembolic Disease. M. Morrison, I. H. Richter and L. Loewe.—p. 879.

American Journal of Medicine, New York

5:783-918 (Dec.) 1948

Hemodynamic Response of Man to Nor-Epinephrine and Epinephrine and Its Relation to Problem of Hypertension. M. Goldenberg, K. L. Pines, Eleanor de F. Baldwin and others.—p. 792.

Effect of Tetraethylammonium in Arterial Hypertension. A. R. Frisk, S. Hammarström, H. Lagerlöf and others.—p. 807.

*Effect of Low Sodium Diet and Rice Diet on Arterial Blood Pressure. B. Rosenberg, A. E. Rosenthal and M. B. Rosenbluth.—p. 815.

Electrocardiographic Manifestations of Potassium Intoxication. H. J. Stewart, E. M. Shepard and E. L. Horger.—p. 821.

Relation of Abnormalities in Concentration of Serum Potassium to Electrocardiographic Disturbances. R. Tarail.—p. 828.

Influence of Serum Potassium and Other Electrolytes on Electrocardiogram in Diabetic Acidosis. C. S. Nadler, S. Bellet and Mary Lanning. —p. 838.

*Sponge Biopsy in Cancer Diagnosis. S. A. Gladstone.—p. 849.

Use of Intermittent Positive Pressure Breathing Combined with Nebulization in Pulmonary Disease. H. L. Motley, L. P. Lang and B. Gordon.—p. 853.

Low Sodium or Rice Diet in Hypertension.—Rosenberg and his associates treated 7 hypertensive patients with a low sodium diet that was adequate in protein; 4 received the rice diet in addition to this; 1 had the rice diet alone, and in 1 patient observations were discontinued because he did not adhere to the diet. Four of 7 on the low sodium diet experienced a statistically significant fall in blood pressure; in 3 there was no change. Of 5 patients on the rice diet 3 showed statistically significant falls in both systolic and diastolic pressures, but only 1 to a normal value. The effect of the rice diet was only slightly greater than that of the low sodium diet. Although there was a fall in blood pressure in 5 of the patients studied, there was no relief of symptoms. Although the number of patients studied is small it is believed these changes were not of sufficient magnitude to warrant the routine use of this type of therapy in the management of essential hypertension.

Sponge Biopsy in Cancer Diagnosis.—After citing certain shortcomings of the vaginal smear technic, Gladstone presents a method which represents a simplified technic for obtaining living cells and clumps of cells in a form suitable for paraffin embedding directly from the tissue suspected. It consists essentially of rubbing a piece of sponge over the suspected tissue. Fluid and cells exuding from the tissue will be absorbed by the sponge which is then dropped into a small bottle of 10 per cent formaldehyde or other fixative. The sponge and its absorbed contents are then treated as one would treat a block of tissue for embedding, cutting and staining (hematoxylin and eosin) prior to microscopic examination. A sponge of protein composition such as gelatin is particularly suitable for this purpose. The author uses an absorbable gelatin sponge 2 by 2 by 5 cm. It is clamped along one margin by a surgical sponge forceps. After insertion of a vaginal speculum and visualization of the cervix the sponge is rubbed firmly over the mucosal surface and mucoepithelial junction of the external os. The author has examined eighty-eight slides from sponges rubbed

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over tumorous and nontumorous tissues. In general the tumor cells when present are so numerous and so readily recognized as to permit prompt diagnosis. The cells are well preserved and well fixed. They show the characteristic changes.

American Journal of Pathology, Ann Arbor, Mich.

24:1137-1320 (Nov.) 1948

*The Pneumonitis and Granulomatosis Peculiar to Beryllium Workers. F. R. Dutra.—p. 1137.
Paragangliomas: Review of Subject and Report of 5 Original Cases. O. A. Brines and E. R. Jennings.—p. 1167.
Cytologic Features of Carcinomas as Studied by Direct Smears. E. Hauptmann.—p. 1199.
Diffuse Interstitial Myocarditis in Children. R. K. House.—p. 1235.
Structure of Glomerulus of Human Kidney. J. F. A. McManus. —p. 1259.
Cellular Changes in Rabbits During Antibody Formation: I. Response to Eberthella Typhosa. C. McNeil.—p. 1271.
Thrombotic (Embolic) Aortic Occlusion: Its Occurrence Among Mentally Sick Patients. G. S. Strassmann.—p. 1289.

Beryllium Pneumonitis.—Dutra shows that exposure to dust and fumes containing beryllium has resulted in a number of cases of pulmonary disease. These are of two fairly distinct clinical types: an acute pneumonitis and a protracted pulmonary fibrosis and emphysema. In acute pneumonitis there is a boggy, generalized consolidation of lobes, simulating the gray hepatization in lobar pneumonia. Microscopically, there is a diffuse intra-alveolar exudate composed of large mononuclear phagocytes (septal cells) and edema fluid. Intraseptal lymphocytes and plasma cells are also fairly numerous. With chronic pulmonary fibrosis (granulomatosis) the lungs have been voluminous and emphysematous. Many fine nodules were scattered diffusely throughout the lungs, and the right ventricle of the heart was enlarged. The granulomas which are typical of beryllium disease are formed in part within alveolar spaces by the organization of exudate and in part within the septal and peritruncal connective tissues. They are comprised of central regions of fibrinoid material or granular debris, and the central regions are surrounded by a peripheral zone of fibrosis in which there is an infiltration of lymphocytes and plasma cells. The centers of the granulomas are occasionally occupied by giant cells of the Langhans' type. There are conchoidal bodies in most cases, sometimes within giant cells, sometimes lying free in debris or in fibrous tissue. Granulomas similar to those of the lungs have been found in the skin and subcutaneous tissues into which beryllium oxide or phosphors have accidentally been introduced.

American Journal of Surgery, New York

76:637-794 (Dec.) 1948

Colloid Adenocarcinoma Involving Perianal Region, Anus, Rectum or Sigmoid Colon. J. R. Hill and N. D. Smith.—p. 642.
*Choice of Operation in Carcinoma of Left Half of Large Bowel. R. W. McNealy and F. D. Wolfe.—p. 646.
Surgical Management of Lesions of Large Bowel. H. E. Bacon and G. D. Vaughan.—p. 648.
Selection of Patients and Anastomotic Procedures for Carcinoma of Rectum and Rectosigmoid. R. R. Best.—p. 654.
Polyposis of Colon in Children. J. G. Kerr.—p. 667.
Treatment of Hemorrhoids. G. J. Hamilton.—p. 672.
Problem of Foreign Bodies in Colon and Rectum. F. G. ReBell.—p. 678.
Sacral and Presacral Tumors. S. T. Ross.—p. 687.
Organization and Operation of Department of Proctology in U. S. Veterans Hospital: Some Experiences Gained from First Year's Operation. W. C. Bernstein.—p. 694.
Procedures Used in Treatment of Complicated Fistulas. D. R. Laird. —p. 701.
*One Year's Treatment of Non-Specific Ulcerative Colitis with Intestinal Extract. B. Haskell and M. H. F. Friedman.—p. 709.
*Surgical Treatment of Non-Specific Ulcerative Colitis. W. A. Fansler and H. M. Frykman.—p. 713.
Polypoid Lesions of Colon and Rectum. R. A. Scarborough and R. R. Klein.—p. 723.
Role of Pathologist in Diagnosis of Polypoid Lesions of Colon and Rectum. F. C. Helwig.—p. 728.
Surgical Treatment of Polyps of Large Intestine. R. B. Cattell.—p. 733.

Operation in Carcinoma of Left Half of Large Bowel.—McNealy and Wolfe say that the aim of each operation for carcinoma of the large bowel is to remove completely the tumor and adjacent tissues that might be involved. Restoration of bowel continuity and sphincter control should be provided when possible, but under no circumstances should one sacrifice completeness of dissection and resection. In those portions of the left half of the large bowel that are easily accessible a wide resection with primary anastomosis is the most desirable operation. However, even a mild degree of obstruction and consequent distention are contraindications to this operation. Retention of barium in the colon following previous roentgenologic examination makes primary anastomosis extremely hazardous. If there is evidence of barium or fecal material in the colon, the operation is postponed until the bowel is emptied of its contents. If the bowel can be decompressed by enemas, chemical biostatics will reduce the bacterial flora to a level compatible with primary healing. In addition to the local factors the vitamin level and the efficiency of the liver are important. An adequate blood supply can usually be assured if one is careful to divide the mesentery in a manner that will not impede the free flow of blood to the cut ends of the bowel. The crushing of these ends which are later to be used in the anastomosis is unsafe. There are patients who are not suitable for resection followed by primary anastomosis. Patients who have remained obstructed until their condition has assumed emergency proportions may require immediate colostomy. The authors oppose the Mikulicz procedure when the patient's condition is complicated by distention of the colon. Carcinomas located at or near the peritoneal reflection and those below this level are probably best managed by a one stage abdominoperineal resection. If obstruction exists, a primary colostomy is necessary. In the authors' 266 cases the abdominoperineal operation was employed in 188, primary anastomosis in 50 and permanent colostomy in 18 cases. The Mikulicz operation was used in only 1 patient; 9 patients refused operation. The authors have tried to adapt each operation to the requirements of the individual patient.

Intestinal Extract in Ulcerative Colitis.—Entertaining the possibility that nonspecific ulcerative colitis is due to a deficiency of an intrinsic protective factor which is present normally in the bowel mucosa, Haskell and Friedman used extracts of hog's intestinal mucosa in patients with this disorder. After their studies had been in progress for some months they learned that similar experiments were being made in England. To date Haskell and Friedman have used the intestinal extract in 71 patients, but in most of them the time interval which has elapsed since treatment was begun has been too short to permit evaluation of the results. The present report is, therefore, restricted to a study of 27 patients who have been under treatment for a minimum period of one year. Diagnosis was established on the basis of clinical history, sigmoidoscopy, roentgenologic bowel studies, examination of the stools and repeated stool cultures which were negative for pathogenic organisms. The same criteria were used for evaluating the results of treatment. Thirteen of the 27 patients showed both symptomatic and sigmoidoscopic improvement; in 8 others improvement was evident only on sigmoidoscopic examination and 3 others showed only symptomatic improvement; in the remaining 3 patients no improvement was noted. After remission of symptoms, withdrawal of the intestinal extract or substitution of a placebo resulted in relapse, with remission occurring again on resumption of treatment. It is probable that sustained improvement can be maintained only by continued administration of the extract.

Surgical Treatment of Ulcerative Colitis.—Fansler and Frykman believe that there is no yardstick which will definitely indicate when to abandon conservative measures and resort to surgical treatment in ulcerative colitis. The more recent trend is toward earlier and more frequent surgical intervention. Operations found most useful are (1) ileostomy alone; (2) ileostomy with complete colectomy, with or without removal of the rectum; (3) partial or complete colectomy with anastomosis of the ileum to the remaining segment of colon or rectum, and (4) vagotomy. Until recently surgical treatment of ulcerative colitis has been directed entirely toward the intestinal tract. In October 1946 Dennis at the University of Minnesota performed a transthoracic vagotomy for this condition. In March 1948 he reported 19 cases in which he had done a bilateral vagotomy for the treatment of idiopathic ulcerative colitis and regional enteritis. Of this group 73 per cent had either shown definite improvement or had become entirely asymptomatic. One of the authors, Fansler, made proctoscopic observations on a considerable number of the patients in the

series operated on by Dennis and was so impressed that the procedure was recommended to several patients under their care. Transthoracic vagotomy was done in 4 of their patients. One patient appears to be cured, 2 show improvement and the fourth shows moderate improvement. Considerable time must elapse before it can be determined whether complete resolution of the chronic inflammatory process will occur. In general vagotomy seems more applicable in the acute and early chronic types of the disease before irreparable damage to the colon has occurred. In the cases of intractable disease in which the colon has been converted into a thickened, fibrotic tube lined chiefly with infected granulation tissue and in those showing evidence of polyp formation, the methods of intestinal surgery are the procedure of choice.

American Review of Tuberculosis, New York

58:479-582 (Nov.) 1948

Further Studies on Dihydrostreptomycins. G. Rake, F. E. Pansy, W. P. Jambor and R. Donovick.—p. 479.
Experimental Evaluation of Dihydrostreptomycin. A. O. Edison, B. M. Frost, O. E. Graessle and others.—p. 487.
Dihydrostreptomycin: Its Effect on Experimental Tuberculosis. W. H. Feldman, A. G. Karlson and H. C. Hinshaw.—p. 494.
*Laboratory and Clinical Investigation of Dihydrostreptomycin. L. B. Hobson, R. Tompsett, C. Muschenheim and W. McDermott.—p. 501.
*Clinical Administration of Dihydrostreptomycin in Tuberculosis: Preliminary Report. H. C. Hinshaw, W. H. Feldman, D. T. Carr and H. A. Brown.—p. 525.
Distribution of Dihydrostreptomycin in Various Body Fluids. L. Levin, D. T. Carr and F. R. Heilman.—p. 531.
*Results of Sanatorium Treatment and Collapse Therapy. F. A. H. Simmonds and W. J. Martin.—p. 537.
Pleural Effusion Simulating Elevated Diaphragm. J. J. Cincotti, S. T. Allison and J. M. Nilsson.—p. 554.
Histoplasmosis. W. B. Dubin, C. G. Culbertson and H. P. Friedman.—p. 562.
Preservation of BCG Strain. F. Van Deinse.—p. 571.

Dihydrostreptomycin.—According to Hobson and his associates dihydrostreptomycin is an antibacterial agent which has been prepared by catalytic hydrogenation of streptomycin. It differs from the latter structurally only in having a hydroxyl instead of a carbonyl group in the streptobiosamine portion of the molecule. The present study indicates that the toxicity of dihydrostreptomycin differs significantly from that of streptomycin. Both drugs may cause a variety of toxic reactions in human beings when administered over long periods. Dihydrostreptomycin was found to be less neurotoxic than streptomycin. In the patients treated in this study, evidence of vestibular damage appeared later and less uniformly with 5.0 Gm. of dihydrostreptomycin daily than it has in patients given 3.0 Gm. of streptomycin daily. Dihydrostreptomycin is also well tolerated by patients who are hypersensitive to streptomycin. Five patients were given the dihydro derivative in doses up to 2.0 Gm. daily without untoward reaction at times when hypersensitivity to streptomycin was readily demonstrable. In the 12 cases of pulmonary tuberculosis reported here, the therapeutic results were judged to be as good as those that have been obtained with streptomycin. Resistant strains of tubercle bacilli have emerged during treatment with dihydrostreptomycin in the same fashion as with streptomycin. Highly resistant strains, not inhibited by 1,000 micrograms per cubic centimeter of one compound, are similarly resistant to the other. Dihydrostreptomycin should prove to be useful in the treatment of patients unable to tolerate streptomycin because of hypersensitivity. The lower neurotoxicity of the dihydro derivative also suggests that it is preferable to streptomycin for the treatment of patients who require large doses or long courses of the antibacterial agent.

Clinical Use of Dihydrostreptomycin.—Hinshaw and his associates present clinical observations on 14 patients who were treated with dihydrostreptomycin and all but 1 of whom had some form of tuberculous process, including tuberculous meningitis, miliary tuberculosis, postoperative tuberculous empyema and pulmonary tuberculosis. The authors gained the impression that dihydrostreptomycin is much less toxic than streptomycin when given in comparable doses for similar periods. It may be administered to patients in doses of 2 to 3 Gm. per day for sixty days, or perhaps longer, with little danger of producing impairment of function of the organs of equilibration. The fact that dihydrostreptomycin may be administered to some patients who are allergic to streptomycin and the fact that eosinophilia has not been observed in this series of treated patients may be important. The only unfavorable attribute of dihydrostreptomycin noted was irritation of the tissues at the site of injection. The irritation is appreciably more severe than that produced by streptomycin. Intrathecal injection of dihydrostreptomycin is not recommended for the treatment of meningitis unless a less irritant form of the drug can be produced. Patients with meningitis treated with dihydrostreptomycin might be given purified streptomycin intrathecally. The authors feel that the series of patients reported on here is not sufficiently large, nor is the period of observation sufficiently long, to have revealed all of the possible toxic potentialities of dihydrostreptomycin.

Sanatorium Treatment and Collapse Therapy.—The data for this investigation by Simmonds and Martin were derived from the records of 3,833 persons discharged from Clare Hall County Hospital during the nine years 1937 to 1945. These patients were admitted from the County of Middlesex and were mainly derived from industrial working class or "black-coated" workers and their families. The authors say that the results of treatment in the present series appear to show definite improvement over earlier comparable series of patients in England. This improvement is particularly shown in the group in whom collapse treatment was applied more extensively than in earlier years (approximately 70 per cent). The chance of survival is almost doubled by such treatment. Collapse treatment is the most valuable method at present known for insuring sputum conversion in "positive" patients, and for their recovery, as estimated by living for five years. Such treatment should be employed as thoroughly as possible, but maintained only when the collapse is made efficient.

Annals of Allergy, Minneapolis

6:629-762 (Nov.-Dec.) 1948. **Partial Index**

Management of Pre-Allergic Child. B. Ratner.—p. 629.
Topical Application of Thephorin in Pruritic Dermatoses. C. W. Laymon and J. F. Schmid.—p. 638.
Nethaphyl in Bronchial Asthma. S. W. Simon.—p. 662.
Clinical Evaluation of Orthoxine in Treatment of Allergic Diseases. F. W. Wittich.—p. 664.
Crymotherapy and Anaphylaxis. D. E. Frank.—p. 667.
Integration of Practice of Allergy and Psychiatry. S. J. Prigal.—p. 669.
Relief of Asthma by Means of Low Melting Point Suppositories. S. D. Lockey, J. H. Henkel and Lory C. McAllister.—p. 672.
Asymptomatic Eosinophilia Following Penicillin Administration: Report of Case. M. S. Berk and S. B. Sostek.—p. 675.
Dermatitis Caused by Electrode Jelly. I. Fond.—p. 680.
Personal Experience with "Antihistaminics." L. F. Schiff.—p. 682.
Some Uncommon Reactions to Common Foods. W. D. Langley.—p. 684.
Significant Allergenic Air-Borne Nonpathogenic Bacteria, Their Incidence, Types of Allergies and Treatment: Three-Year Study. P. Shonwald and E. F. Deppe.—p. 687.
Allergic Eczematous Contact-Type Dermatitis from Odd Things or in Odd Ways. M. Leider and Dorothy Furman.—p. 693.
Clinical Evaluation of New Antihistaminic Drug, "Antistine." M. A. Kaplan and N. J. Ehrlich.—p. 697.

Annals of Internal Medicine, Lancaster, Pa.

29:587-764 (Oct.) 1948

*Pathogenesis of Rheumatic Fever. W. J. Kerr.—p. 587.
Use of Estrogens in Medicine. E. L. Sevringhaus.—p. 595.
Note on Coronary Occlusion and Myocardial Infarction Found Post Mortem at Massachusetts General Hospital During Twenty Year Period from 1926 to 1945 Inclusive. C. H. Wang, E. F. Bland and P. D. White.—p. 601.
Effect of Intravenously Administered Oxygen on Symptoms and Vital Capacity in Bronchial Asthma. H. Markow, M. Jacobi, H. Rascoff and others.—p. 607.
Pathogenesis of Coccidioidomycosis with Special Reference to Pulmonary Cavitation. C. E. Smith, R. R. Beard and Margaret T. Saito.—p. 623.
*Treatment of Rocky Mountain Spotted Fever with Chloromycetin. M. C. Pincoffs, E. G. Guy, L. M. Lister and others.—p. 656.
Psychoanalysis. K. E. Appel.—p. 664.
Essential Familial Hypercholesterolemia. C. F. Wilkinson Jr., E. A. Hand and M. T. Fliegelman.—p. 671.
Subjective Manifestations of Hyperactive Carotid Sinus Reflex. L. H. Sigler.—p. 687.
Penicillin Treatment of Streptococcal Pharyngitis. J. P. Loge and E. D. Kilbourne.—p. 698.

Pathogenesis of Rheumatic Fever.—According to Kerr, there is abundant evidence that micro-organisms of the Streptococcus group are the etiologic agents which initiate a train of reactions resulting in the lesions characteristic of rheumatic fever. The seasonal occurrence of outbreaks of rheumatic fever at the time of year when streptococcus infections are prevalent

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lends support to the view that these organisms are causal factors. The silent period of some days to two or three weeks following the pharyngeal symptoms is one of the characteristic features of rheumatic fever. A similar pause is observed in scarlet fever before the renal, articular and cardiac manifestations appear. It is during this period that immune mechanisms are set in motion. An increased antistreptolysin titer is almost constantly observed. The clinical manifestations of varying severity then make their appearance in the synovial membranes and other connective tissues, in the cardiac valves, myocardium and pericardium, in the skin, brain, lungs and kidneys, with symptoms and signs peculiar to the organs and structures concerned. The immunologic processes which are involved in rheumatic fever and scarlet fever are not completely understood. There are, however, some clues which shed light on the problem and point the way for future study. Kerr mentions some of these clues, giving particular attention to Cavelti's search for autoantibodies in the serum of patients with active rheumatic fever. These studies suggest that the etiologic agent, presumably the hemolytic streptococcus, by injury to, or in combination with, the connective tissues of the body produces autoantibodies which act in vivo to bring about lesions which may be progressive or may be reactivated by repeated exposure to the same organism. It is assumed that after the silent period the "trap is sprung," presumably by antigenic substances which are developed by the tissues of the host and perhaps are in the nature of autoantibodies.

Chloromycetin in Rocky Mountain Spotted Fever.—Pincoffs and his co-workers report on chloromycetin which was prepared from liquid cultures of a Streptomyces shown to possess antibacterial activity. It is a crystalline substance relatively insoluble in water, but well absorbed from the gastrointestinal tract. The toxicity of the drug is apparently low. When given intravenously in mice and intramuscularly in dogs, chloromycetin is well tolerated in single doses up to 100 mg. per kilogram of body weight. Reports on the therapeutic use of chloromycetin orally in man have indicated the absence of toxic manifestations. The authors present results obtained with chloromycetin in 15 proved cases of Rocky Mountain spotted fever. Chloromycetin was administered orally in the form of tablets of 0.25 Gm. No fatality resulted among the 15 patients, although 4 had a virulent form of the disease. The evidence presented indicates that the new antibiotic chloromycetin, in addition to its previously demonstrated effectiveness in the treatment in man of scrub typhus and of epidemic typhus, is also effective in the treatment of Rocky Mountain spotted fever. Further studies will be required to determine whether murine typhus, Q fever and other members of the family of rickettsial diseases will yield in similar fashion to this therapeutic agent. The questions of the proper dosage of the drug, and particularly the number of days during which its administration should be continued, are still undetermined. In the present small series of cases no recurrence of the disease was observed when the drug was discontinued after twenty-four hours of normal temperature.

Archives of Pathology, Chicago

45:681-806 (June) 1948

Boeck's Disease (Boeck's Sarcoid). J. Rosenthal and I. Feigin.—p. 681.
*Calcific Disease of Aortic Valve. H. N. Hultgren.—p. 694.
Influence of Sympathectomy on Necrosis Developing in Rabbits' Ear After the Skin Has Been Frozen with Solid Carbon Dioxide. L. Kreyberg.—p. 707.
Effects of Electrolyte Imbalance on Adrenal Gland. J. Nichols.—p. 717.
Effect of 20-Methylcholanthrene on Transplantability of Skin on Mice. M. Silberberg, Ruth Silberberg and B. Hulbert.—p. 722.
*Pulmonary Alveolar Lining in Bronchiectasis. C. F. Watts and J. R. McDonald.—p. 742.
Congenital Megaloureter and Hydroureter: Pathogenesis and Classification. G. E. Irvin and J. E. Kraus.—p. 752.
Anomalies of Coronary Arteries: Report of 4 Cases. N. K. White and J. E. Edwards.—p. 766.
Production of Antireticular Cytotoxic Serum. D. Movitz, Katharine M. Howell, O. Saphir and A. Strauss.—p. 772.

Calcific Disease of Aortic Valve.—The material studied by Hultgren consisted of 100 hearts from unselected, consecutive necropsies made on adults in the department of pathology of the Stanford University School of Medicine. Calcium deposits were observed in the aortic valves in 46 hearts. In 34 of these hearts no gross or histologic evidence of valvular rheumatic disease was found. Such calcium deposits were found more frequently in older persons, and their size and number were greater in the higher age groups. Microscopic examination of the valves revealed that in most cases there were alterations of the dense connective tissue at the base of the leaflet and to a lesser degree in the fibrosa of the leaflet itself. These alterations resembled degenerative processes occurring elsewhere in the vascular system. Calcifications were found most frequently in these areas, suggesting that the deposition of calcium is part of the same degenerative process. The findings suggest that in many cases calcifications of the aortic valves are a result of a purely degenerative process and do not have a rheumatic origin.

Pulmonary Alveolar Lining in Bronchiectasis.—Watts and McDonald say that although under ordinary circumstances the alveoli of the adult do not have a visible lining of cells, a discernible lining of cells may be associated with many pathologic conditions of the lungs. This perplexing situation is largely responsible for the many discrepant accounts of the normal histologic structure of the pulmonary alveolus. The authors report the results of a detailed study of the pulmonary alveolus made in cases of bronchiectasis. Fifty human lungs that had been removed surgically because of bronchiectasis were taken indiscriminately from the pathology museum of the Mayo Clinic. In 4 of the 50 cases of bronchiectasis the lungs presented other pathologic processes as well (abscess in 2 cases, empyema in 1 case and tuberculosis in 1 case). The authors found that in bronchiectasis the pulmonary alveoli commonly had a visible continuous lining of cells. These cells were derived from two sources: (1) from bronchial epithelial cells and (2) from the pericapillary cells of the alveolar wall. The latter origin was far more frequently encountered than was the former. The appearance of the cells of alveolar origin differed from that of the cells of bronchial origin and, in addition, the cells of alveolar origin were frequently phagocytic even after they had assumed a typical epithelium-like structure and arrangement. Although no conclusions were drawn regarding the entodermal or mesenchymal nature of the lining cells of alveolar origin, it was conjectured that their parent cell also gave rise to the alveolar phagocyte.

Archives of Physical Medicine, Chicago

29:751-806 (Dec.) 1948

Heating Effects of Microwaves With and Without Ischemia. R. E. Worden, J. F. Herrick, K. G. Wakim and F. H. Krusen.—p. 751.
Comparative Study of Short Wave and Microwave Diathermy on Blood Flow: Role of Somatic and Sympathetic Nerves in Vascular Response to Deep Tissue Heating. L. L. Siems, A. J. Kosman and S. L. Osborne.—p. 759.
*Experimental Lenticular Opacities Produced by Microwave Irradiations. A. W. Richardson, T. D. Duane and H. M. Hines.—p. 765.
Early Ambulation in Surgical Convalescence. N. Glickman, R. W. Keeton, W. H. Cole and others.—p. 770.

Lenticular Opacities Produced by Microwave Irradiations.—Richardson and his co-workers say that the development of cataract as the result of irradiations is not a new discovery, but investigators in the past have been concerned chiefly with the effects of infra-red, ultraviolet and roentgen irradiations. Sinus disorders have been treated extensively by the use of short wave diathermy for a number of years and have proved safe when used as prescribed. With the production of a new microwave generator which propagates 12.25 cm. waves, a new band of the electromagnetic spectrum has been offered for medical therapy. The authors investigated both the immediate and the delayed effects of microwave irradiations on the eye. A direct single exposure of rabbit eyes to 12.25 cm. microwaves at 5 cm. distance for fifteen minutes with 100 watt power output resulted in cataractous lenticular opacities after a delay of three to nine days. A series of repeated exposures of a smaller magnitude resulted in cataractous lenticular opacities after a delay of two to forty-two days. Four rabbits irradiated for seventeen to twenty minutes at 5 cm. distance revealed cataract formations immediately after the irradiations. Since other workers have shown that the microwave generator serves an adequate purpose in medical therapy by inducing temperature increases in selected areas of

the body, the findings in this report should not discourage its employment in those areas. Precaution should be taken in the future with regard to irradiations in the region of the face and orbit.

Archives of Surgery, Chicago

56:693-818 (June) 1948

*Causation and Treatment of Painful Stiff Shoulder: Subdeltoid Bursitis, Periarthritis, Tendinitis and Adhesive Capsulitis. H. W. Meyerding and J. C. Ivins.—p. 693.
Anatomic Mechanics Underlying Gastrojejunostomy, with Particular Reference to Anterior or Antecolic Types of Anastomoses. R. W. McNealy and J. A. Glassman.—p. 709.
Meckel's Diverticulum. J. W. McRoberts.—p. 718.
Arteriovenous Fistula of Lung: Treated by Ligation of Pulmonary Artery. G. B. Packard and J. J. Waring.—p. 725.
*Reconstruction Following Irradiation Injuries. P. W. Greeley.—p. 741.
Surgical Repair of Cleft Lips. J. B. Brown and F. McDowell.—p. 750.
Indications for and Advantages of Shoemaker-Billroth I Gastric Resection. O. T. Claggett and J. M. Waugh.—p. 758.
Intracranial Pneumocephalus: Report of Case. D. C. Straus.—p. 766.
Atypical Neuralgia of Face. E. R. Schmidt and H. A. Szujewski.—p. 785.
Surgical Uses of Polythene: Experimental Study. J. H. Grindlay and F. C. Mann.—p. 794.

Treatment of Painful Stiff Shoulder.—Meyerding and Ivins present clinical observations on 150 consecutive cases of stiff painful shoulder, in which manipulation with patient under anesthesia, surgical excision of calcified plaques or bursas, injection or needling was performed at the Mayo Clinic during the years 1942 through 1946. The duration of symptoms varied, but in 65 it was of less than a year. Roentgenographic examination revealed calcification in 59 cases and osteoporosis in 34. Since the evidence of calcification depends on the degree of deposit, calcification doubtless was present in more cases. Pain, stiffness and local tenderness were the characteristic symptoms, and they often followed some exertion, such as gardening, painting and washing walls. The pain was usually intermittent. The patient with the acute stage of the disease or with intense pain, local tenderness, slight fever and the arm maintained at the side for protection may be treated for a few days by rest in bed, local application of heat, increased intake of fluid, maintenance of elimination and traction, together with administration of anodynes. Abduction should be encouraged, and conventional diathermy and roentgen therapy may be included, after which patients often are relieved. The authors discuss the treatment to be employed in the subacute and recurrent attacks. In 69 of the 150 cases manipulation with the patient under anesthesia was performed; in 32 additional cases manipulation with injections of procaine hydrochloride into the suprascapular nerve was used; in 31 a needling operation was performed, to pierce and break up the calcareous deposits, and in 18 surgical excision of the calcareous masses was performed. Forty of the 150 patients received roentgen therapy in addition to other treatment, some of them prior to admission at the clinic. Acute lesions have proved more amenable to roentgen treatment than have the more chronic lesions. The authors present detailed reports of 9 patients to illustrate certain points in diagnosis and treatment. By following the procedures outlined in this paper, satisfactory functional results have been obtained in 85 per cent of the cases.

Reconstruction Following Irradiation Injuries.—Greeley says that although in comparison with the vast number of treatments with roentgen rays and radium the actual total of injuries is relatively small, to the plastic surgeon who sees patients with such injuries the number seems to be too large. Some of these lesions result from incidental reactions following treatment of deep lesions, while many others arise in the hands of untrained or inexperienced operators. Typical symptoms of chronic roentgen ray dermatitis are severe pain, itching and ulceration. Frequently the symptoms are so severe that they produce addiction to morphine. After surgical excision relief is dramatic. Permanent cure can be anticipated as soon as the defect created by the surgical excision has been closed. When one considers the avascularity produced by an irradiation injury it becomes apparent that there is little place for conservative management, in spite of enthusiastic reports given by the advocates of local applications of radon paste or the Aloe vera leaf. A permanent cure can be anticipated only when all of the damaged tissue has been excised back to an area of good blood supply. If this excision is not wide enough, reconstructive operations will fail, and later degeneration may occur around or below the site of the original excision. The severe pain and itching are relieved as soon as the damaged tissues have been excised. The remaining problem is one of reconstruction of the cutaneous defect created by surgical excision. A few defects may be closed by primary suture after adequate undermining of the border flaps, so that they can be mobilized without tension, but the majority of the cutaneous defects will, because of their nature and size, have to be covered by a skin graft or skin flap.

Arkansas Medical Society Journal, Fort Smith

45:111-130 (Nov.) 1948

Occupational Health and Its Significance in Trends of Medical Practice. C. A. Nau.—p. 111.
Control of Mortality in Thyroid Surgery. J. H. Hayes.—p. 114.

45:131-146 (Dec.) 1948

Rational Approach to Pediatric Surgery. H. S. Stern.—p. 131.
Relationship of Urology to Other Specialties. H. K. Wade Jr.—p. 134.

California Medicine, San Francisco

69:409-488 (Dec.) 1948

Heart Failure of Pulmonary Origin. J. McMichael.—p. 409.
Causalgia: Review. E. M. Webb and E. W. Davis.—p. 412.
Surgical Significance of Acute Abdominal Pain. I. W. Hinton.—p. 418.
The Nervous Woman in Industry. K. D. Gardner.—p. 422.
At Head of Table. W. Bourne.—p. 425.
Laboratory in Diagnosis of Communicable Diseases. M. H. Merrill.—p. 429.
*Late Results of Uretero-Intestinal Implantation. F. Hinman.—p. 433.
Hemagglutination by Viruses—Its Biological Implications. E. Jawetz.—p. 435.
Changes in Urinary Tract in Pregnancy. D. G. Morton.—p. 439.
General Surgical Complications of Pregnancy. R. B. McCarty.—p. 440.
Chemotherapy for Renal Infections. D. A. Charnock.—p. 445.
*The Electrocardiogram in Rheumatic Fever. J. Kahn, E. Shapiro and M. L. Lipkis.—p. 449.

Ureterointestinal Implantation.—Hinman reports 31 patients with exstrophy of the bladder who have had ureteroenterostomy. Six patients died. Four deaths were surgical, 2 from acute peritonitis five and eight days after transplantation by the Coffey method before the days of succinylsulfathiazole. A third patient, aged 4 months, died two days after operation, and necropsy revealed extensive necrosis of the ends of both ureters with leakage. Between 1 and 2 years is now thought to be the optimum age for operation. The fourth patient, a child aged 16 months, died from an anesthetic. With improved methods of preparation and technic the surgical risk may be estimated conservatively for this group to be well under 5 per cent. The other deaths occurred respectively seven years and nine months after operation, in the former probably following an attack of recurrent pyelonephritis, in the latter case from shock following cystectomy and plastic repair of the external genitalia. Of the 25 patients with exstrophy who are living, 18 have survived more than six years, 7 of these more than ten years and 4 more than fifteen years, since the operation. Of these 4, 3 have been in good health twenty-eight years, eighteen years and fifteen years respectively. The fourth was as well as the others for twenty years and had married, but for some unknown reason began to have attacks of pyelonephritis. Another patient surviving twelve years had to have permanent nephrostomy ten years after operation, and still another patient ten years after ureteral transplantation shows definite hydronephrosis, which already was present before the operation and which may require nephrostomy later. Some of the remaining 19 patients have occasional attacks of fever readily controlled by the modern urinary antiseptics, but the majority of the 19 patients are in good health. A long term survival in good health can be expected after successful ureteral transplantation into the rectosigmoid, and the risk of the method does not contraindicate its use in the radical treatment of cancer of the bladder.

Electrocardiogram in Rheumatic Fever.—According to Kahn and his co-workers, in active rheumatic fever each segment of the electrocardiogram may be altered and the rhythm may be disturbed. By far the most common change is an increase in the P-R interval, which may occur in varying degrees up to

complete dissociation of auricle and ventricle. With the return to normal of tachycardia, temperature, joint symptoms and blood findings, the P-R interval in most cases also returns to normal. In a few cases it may persist for weeks and months and permanent damage of the conducting tissue must be suspected. The change in the P-R interval varies with the acuteness of the disease process, and this applies also to the frequency of changes in the QRS-T or ventricular portion of the electrocardiogram in rheumatic fever. Gross widening of this segment beyond the normal of the person under observation may be considered important as would distinct shifting of the electrical axis. Elevation or depression of the S-T portion when marked or changing from time to time in serial observations or when associated with changes of the T portion is definitely important. T wave changes such as depression, diphasic character or inversion are in general an indication of myocardial or pericardial change. The most important arrhythmia occurring during the course of rheumatic fever is auricular fibrillation. Not all patients with rheumatic carditis, even when the disease is severe, show electrocardiographic changes. Pronounced electrocardiographic changes can occur without clinical evidence of disease. Taking of frequently repeated electrocardiograms is emphasized for the detection of cardiac involvement in rheumatic fever. The electrocardiographic changes in rheumatic fever are not specific for this disease, and consequently a certain amount of caution is necessary in drawing conclusions from electrocardiographic changes. In most cases of rheumatic fever the diagnosis is readily apparent on clinical grounds. The electrocardiogram is altered so much more frequently in rheumatic fever than in most diseases which might simulate it that the presence of a distinct change in the electrocardiogram may be looked on as a point indicative of this disease.

Cancer, New York

1:357-546 (Sept.) 1948

*Nitrogen-Mustard Therapy for Hodgkin's Disease, Lymphosarcoma, the Leukemias, and Other Disorders. M. M. Wintrobe and C. M. Huguley Jr.—p. 357.
Histological Effects of Nitrogen Mustards on Human Tumors and Tissues. Sophie Spitz.—p. 383.
Studies on Chemotherapy of Leukemia: I. Effect of Certain Nitrogen Mustards and Carbamates on Transmitted Mouse Leukemia. J. H. Burchenal, R. A. Lester, J. B. Riley and C. P. Rhoads.—p. 399.
On Possible Relationship Between Adrenocortical Function and Leukemic State. L. Levin.—p. 413.
Primary Malignant Neoplasms of Vesicovaginal Septum. H. R. Sauer, J. E. Macmanus and M. S. Blick.—p. 419.
Pancreato-Total Gastrectomy and Splenectomy for Advanced Carcinoma of Stomach. A. Brunschwig.—p. 427.
Anatomic Distribution of Intraepithelial Epidermoid Carcinomas of Cervix. F. W. Foote Jr. and F. W. Stewart.—p. 431.
Glomus-Jugularia Tumors. T. Winship, C. T. Klopp and W. H. Jenkins. —p. 441.
Resection of Stomach and Adjacent Organs in Continuity for Advanced Cancer. G. McNeer and A. James.—p. 449.
Histamine Content of Neoplastic Pulmonary Tissues. W. E. Bloomer and G. E. Lindskog.—p. 455.
Studies on Invasiveness of Cancer: Adhesiveness of Malignant Cells in Various Human Adenocarcinomas. M. McCutcheon, D. R. Coman and F. B. Moore.—p. 460.
*Association of Breast and Pelvic Disease. Virginia K. Pierce and D. P. Slaughter.—p. 468.
Studies of Liver Function in Patients Having Cancer of Breast. H. J. Tagnon and J. B. Trunnell.—p. 472.
Influence of Diet on Ability of Rat-Liver Slices to Destroy the Carcinogen N,N-Dimethyl-P-Aminoazobenzene. C. J. Kensler.—p. 483.
*Some Epidemiologic Features of Cancer. M. L. Levin.—p. 489.

Nitrogen Mustard Therapy.—Wintrobe and Huguley describe the effects obtained with methyl-bis (beta chloroethyl) amine hydrochloride, also called nitrogen mustard, in 102 patients. They included 32 patients with Hodgkin's disease, 11 with lymphosarcoma, 5 with reticulum cell sarcoma, 37 with leukemia and 17 with miscellaneous disorders. A palliative effect on adenopathy, fever, bone pain, splenomegaly and various other clinical symptoms has been observed in many patients with Hodgkin's disease, lymphosarcoma and leukemia. Nitrogen mustard produced remissions in a number of patients with Hodgkin's disease who were considered to be "roentgen ray resistant." Toxic manifestations of nausea and vomiting were observed in most patients after administration of nitrogen mustard. Nitrogen mustard therapy frequently resulted in a decrease in leukocyte count with lymphocytopenia and granulocytopenia. This was often accompanied by a variable decrease in red cells and a decrease in platelets. After the initial decrease in blood elements, an increase in red cells, even to complete disappearance of anemia and of thrombopenia, resulted in those patients responding favorably. In leukemia, a fall in the leukocyte count was often followed by a decrease in anemia or its complete disappearance. Ultimately nitrogen mustard therapy, like irradiation, proved ineffective, but ease of administration, effectiveness in some "roentgen ray resistant" cases and, rarely, a better tolerance for nitrogen mustard are advantages of nitrogen mustard as compared with roentgen ray therapy.

Association of Breast and Pelvic Disease.—Pierce and Slaughter subjected 100 women with breast disease to a gynecologic survey, including detailed histories, endometrial biopsies and vaginal smears. Eighty-three were found to have had or to have demonstrable pelvic disorders either in the past, at the first examination, or which developed while they were under observation. This did not include inflammatory lesions and changes resulting from obstetric wear and tear. The patients with benign breast lesions had more than twice as many pathologic changes in the female reproductive organs as had those with breast cancer. The incidence of pelvic disease in the entire group was nearly four times that of well women of comparable age. These results show the association of a cancer tendency in the two systems, so that some common etiologic factor might well be indicated. Clinically they point to the duty of the general surgeon to include a pelvic examination in the investigation of every woman with a breast lesion.

Epidemiologic Features of Cancer.—In applying the term "epidemiology" to cancer, Levin defines it as the study of what persons or groups of persons are most likely to have cancer and under what circumstances. A striking feature of cancer mortality in the past century has been its different course in the two sexes. Since 1915, any improvement in cancer diagnosis in females has been counterbalanced by improvement in cure rates, whereas in males the improvement in diagnosis was not so counterbalanced. Cancer of sites peculiar to each sex tended to increase in males and to decrease (with the exception of "ovary and fallopian tube") in females. The net result was a decrease in cancer mortality among females of about 6 per cent, while mortality in males increased during the same period by more than 8 per cent. Those concerned with providing improved diagnostic or treatment facilities for cancer are especially interested in its epidemiologic features, because such efforts will be more efficient to the extent that they are directed toward those persons who present the greatest risk of cancer. Discussing efforts directed toward the early discovery of certain forms of cancer the author mentions the use of vaginal smears to discover early uterine cancer. Here other factors, in addition to age, may prove useful as guides to what groups of women should be studied most intensively. Studies have shown that uterine cancer occurs more frequently among married than among single women; also, it is approximately three times more frequent among women who have had syphilis, and it is almost twice as frequent among Negro women as among white. Randall has demonstrated that women whose menopause is characterized by a period of menorrhagia suffer an increased incidence of carcinoma of the uterine fundus in later life. Case-finding procedures applied to the group that show higher than normal cancer incidence may be more effective.

Cincinnati Journal of Medicine

29:539-602 (Oct.) 1948

Treatment of Neuroses. Helen V. McLean.—p. 545.
Androgens in Advanced Cancer of Breast. J. L. DeCourcy.—p. 556.

29:603-670 (Nov.) 1948

Medicine Today in Poland and Finland. E. B. Ferris.—p. 603.
Medical Aspects of Artificial Radioactivity. C. M. Barrett and B. Felson. —p. 610.
Phytotoxic Properties of Normal, Pathologic and Irradiated Blood Serums and Their Usefulness in Medical Research. D. I. Macht.—p. 616.

29:671-750 (Dec.) 1948

Recent Advances in Treatment of Lymphomas and Leukemias. L. F. Craver.—p. 671.
Protein Needs in Surgery. R. Elman.—p. 680.
Salicylate Intoxication. H. F. Downing.—p. 694.

Endocrinology, Springfield, Ill.

43:275-354 (Nov.) 1948

Gonadotrophic Hormones and Ovarian Hyperemia in Rat. H. S. Kupperman, W. H. McShan and R. K. Meyer.—p. 275.
Critical Requirement for Pantothenic Acid by Adrenalectomized Rat. Mary E. Dumm and Elaine P. Ralli.—p. 283.
Simplified Technic for Hypophysectomy of Domestic Fowl. I. Rothchild. —p. 293.
Thyroglobulin Formation in Thyroid Follicle Visualized by "Coated Autograph" Technic. C. P. Leblond and J. Gross.—p. 306.
Mechanisms of Desoxycorticosterone Action: Effects of Liver Passage. D. M. Green.—p. 325.
Anterior Pituitary Growth Preparations: Relationship Between Nitrogen Storage and Other Criteria of Activity. P. D. Bartlett and O. H. Gaebler.—p. 329.
Correlation of Circulating Polymorphonuclear Leukocytes (Neutrophiles) with Adrenal Ascorbic Acid in Rat. A. Dury.—p. 336.

Florida Medical Association Journal, Jacksonville

35:335-398 (Dec.) 1948

Amebiasis: Electrocardiographic Changes in Patients Treated with Emetine Hydrochloride. W. Merritt.—p. 351.
The Low Sodium Diet. E. M. Isberg.—p. 356.
Congenital Defects. H. G. Morton.—p. 362.
*Peritoneal Dialysis in Treatment of Acute Uremia. J. A. Pendino and H. P. Hampton.—p. 368.

Peritoneal Dialysis in Acute Uremia.—Pendino and Hampton report a case of uremia in which peritoneal dialysis was successfully employed. They conclude that the treatment of azotemia due to acute renal failure by peritoneal lavage is of practical value. Careful control of fluid and electrolyte balance and treatment of anemia and acidosis are necessary for successful peritoneal lavage, and changes in the perfusing fluid electrolyte concentrations may be required. Peritoneal lavage may be indicated in the treatment of uremia of acute renal failure due to: (*a*) heavy metal poisoning, (*b*) intravascular hemolytic reactions, (*c*) sulfonamide drug intoxication and (*d*) burns or crushing injuries.

Indiana State Medical Assn. Journal, Indianapolis

41:1229-1332 (Dec.) 1948

Observation. W. K. Keller.—p. 1247.
Virus Diseases in Children. A. D. Kaiser.—p. 1250.
Case of Arsenic Encephalopathy Successfully Treated with BAL. J. B. Masters.—p. 1254.
Rupture of Jejunum and Ileum Due to Nonpenetrating Abdominal Trauma: Report of Five Cases. J. P. Powell, J. S. Battersby and T. B. Bauer.—p. 1256.

Journal of Gerontology, Springfield, Ill.

3:183-250 (July) 1948

Female Sex Hormone Replacement in the Aged Woman: Preliminary Report. W. H. Masters and W. M. Allen.—p. 183.
Excitability and Aging. F. Bourlière.—p. 191.
*Carotid Sinus Pressure as Aid in Detection of Atherosclerosis. J. I. Goodman and S. Wassermann.—p. 196.
Homes, Hotels and Other Institutions for the Aged. E. H. Moore. —p. 207.
Philadelphia's Recreational Project for Older People. Georgene E. Bowen. —p. 215.
Aristotle on Mental Aging. A. R. Chandler.—p. 220.

Carotid Sinus Pressure and Atherosclerosis.—Goodman and Wassermann investigated the carotid sinus reaction as a test for arteriosclerosis. In employing carotid sinus pressure in a series of patients, three characteristic cardiovascular reactions were found: (1) bradycardia or cardiac standstill (cardioinhibitory effect), (2) a clear, sustained drop in blood pressure (vasodepressor effect) and (3) a combination of these two (mixed effect). The concept is advanced that the vasodepressor effect is dependent on the presence of atherosclerosis in the aorta and the great vessels in which is lodged the sinoaortic apparatus. A drop in the systolic pressure greater than 20 mm. of mercury and persisting over three minutes is considered to be indicative of atherosclerosis of the aorta and the adjacent great vessels, conveniently termed proximal (central) atherosclerosis. Under this heading are included the aorta, innominate, subclavian and common carotid arteries. Marked pulsations in these vessels were of such common occurrence in the cases in which results of carotid sinus pressure tests were positive that they proved to be of diagnostic importance.

Journal of Investigative Dermatology, Baltimore

11:305-396 (Nov.) 1948

Mycosis Fungoides. E. K. Stratton.—p. 307.
Sensitivity to Intracaine. C. R. Rein and N. B. Kanof.—p. 311.
Accidental Vaccination: Cause of Confusion in Diagnosis of Lesions of Lip and Penis. L. L. Coriell, H. Blank and T. F. McNair Scott. —p. 313.
Investigational Studies in Some Congenital and Acquired Defects of Hair in Children. L. Goldman and L. M. Mason.—p. 323.
Histologic Examinations of Fungous Infections of Nails. F. Sagher. —p. 337.
Further Studies on Treatment of Lupus Erythematosus with Sodium Para-Aminobenzoate. C. J. D. Zarafonetis, R. H. Grekin and A. C. Curtis.—p. 359.
Development of Epidermal Pigmentation in Negro Fetus. A. A. Zimmermann and T. Cornbleet.—p. 383.

Journal of Lab. and Clinical Medicine, St. Louis

33:1353-1502 (Nov.) 1948. **Partial Index**

Studies on Rh Antibodies. E. Witebsky and J. F. Mohn.—p. 1353.
Metabolism, Toxicity, and Manner of Action of Gold Compounds in Treatment of Arthritis: VIII. Effect of BAL and Other Thiol Compounds in Preventing Inhibition of Oxygen Consumption of Rat Tissues Produced by Gold Salts. W. D. Block, Naomi C. Geib and W. D. Robinson.—p. 1381.
Effect of Para-Aminobenzoic Acid on Metabolism and Excretion of Salicylate. R. M. Salassa, J. L. Bollman and T. J. Dry.—p. 1393.
Use of Penicillin and Streptomycin in Isolation of Poliomyelitis Virus from Fecal Specimens. Beatrice F. Howitt and V. H. Barnett. —p. 1402.
Effect of Commercial Heparin on Platelet Count. E. Fidlar and L. B. Jaques.—p. 1410.
Effect of Heparin on Platelets in Vivo. A. J. Quick, J. N. Shanberge and M. Stefanini.—p. 1424.
Effect of Vitamin K on Dicumarol-Induced Hypoprothrombinemia in Rats. E. J. Boyd and E. D. Warner.—p. 1431.
Ventricular Irregularities Induced by Sympatho-Adrenal Discharge and Chloroform. G. X. Trimble.—p. 1438.

Journal-Lancet, Minneapolis

68:411-446 (Nov.) 1948

Diagnosis and Treatment of Certain Congenital Cardiac Defects Amenable to Surgery. K. A. Merendino.—p. 411.
Regional Enteritis. R. D. Estrem.—p. 417.
Psychosomatic Medicine in General Practice. P. K. Arzt.—p. 423.
Clinical Experiences with New Antihistaminic Drug—Thephorin. M. Monchek.—p. 428.
Use and Misuse of Streptomycin in Treatment of Tuberculosis. K. H. Pfuetze and Marjorie M. Pyle.—p. 431.

68:447-484 (Dec.) 1948

Advances in Diagnosis and Treatment of Thyroid Disease. Mavis P. Kelsey.—p. 447.
Use of Female Sex Hormone Products in General Practice. A. C. Barnes. —p. 454.
Pilonidal Disease. R. J. Webber.—p. 457.
Rice Diet Treatment in Hypertension as Observed by Patient. W. E. Morse.—p. 463.
Rectal Dilators in Treatment of Constipation. M. D. Finkel and A. J. Levine.—p. 467.
Changing Concept in Pneumonia. G. X. Trimble.—p. 469.

Journal of Nat. Cancer Inst., Washington, D. C.

9:57-128 (Oct.) 1948. **Partial Index**

Investigations on Properties of Agents Causing Fowl Tumors. L. Dmochowski.—p. 57.
*Carbamates in Chemotherapy of Leukemia. II. Relationship Between Chemical Structure, Leukopenic Action, and Acute Toxicity of Group of Urethan Derivatives. H. E. Skipper, C. E. Bryan, W. H. Riser Jr. and others.—p. 77.
Further Studies on Relation of Mammary-Tumor Agent to Mammary Tumors of Hybrid Mice. H. B. Andervont and Thelma B. Dunn. —p. 89.
Inheritance of Susceptibility to Tumors Induced in Mice. III. Tumors Induced with Methylcholanthrene in Backcross of C3H and JK Mice. W. J. Burdette.—p. 105.
Delay in Appearance of Palpable Mammary Tumors in C3H Mice Following Ingestion of Pollenized Food. W. Robinson.—p. 119.

Carbamates in Leukemia.—Skipper and his associates carried out toxicologic and hematologic studies on a series of carbamates consisting of twenty-seven compounds closely related to urethane. It was found that increasing the carbon chain of the ester group (from methyl through butyl) or substitution at the nitrogen position increased the toxicity of the resulting compound. Substitution of sulfur for the carbonyl oxygen increased the toxicity of the parent carbamates. Three variations of the ester group of urethane were accompanied by

lessening of the leukopenic action of the molecule. A number of N-substituted carbamates with pronounced leukopenic action at nonlethal doses were uncovered. Potassium cyanate was not found to be leukopenic under the conditions of assay. Ethyl carbamate (urethane) was the only one of the series studied which caused a significant reversal of the differential leukocyte picture at two days after injection. Ethyl N-phenylcarbamate and N-carbethoxymorpholine tended in the direction of early preferential lymphocyte depression.

Journal of Nutrition, Philadelphia

36:425-522 (Oct.) 1948. **Partial Index**

Response of Dogs to Liver Extracts Containing the Pernicious Anemia Factor. W. R. Ruegamer, W. L. Brickson, N. J. Torbet and C. A. Elvehjem.—p. 425.
Southern Peas and Other Legume Seeds as Course of Protein for Growth of Rats L. R. Richardson.—p. 451.
Occurrence of 5 B-Vitamins in Tissues of Pregnant Rats Fed Rations Satisfactory and Unsatisfactory for Reproduction. Gladys Everson, Eleanor Williams, Elizabeth Wheeler and others.—p. 463.
Reproduction and Lactation of Rats Receiving Pork Diets. L. M. Henderson, B. S. Schweigert, A. K. Mozingo and C. A. Elvehjem. —p. 479.
Cholestrol Content of Cows' Milk. Berthe Nataf, O. Mickelsen, A. Keys and W. E. Petersen.—p. 495.
Basal Metabolism of 218 Girls and Young Women of Southern Arizona, Fourteen to Twenty-Three Years of Age, Inclusive. Ethel M. Thompson, Elizabeth W. Cox and Ada M. Ridgway.—p. 507.

Journal of Urology, Baltimore

60:697-796 (Nov.) 1948

Paraganglioma (Pheochromocytoma): Case Report. C. A. Smith.—p. 697.
Hydronephrosis Due to Aberrant Vessels: Remarkable Familial Incidence with Report of Cases. G. Aaron and M. A. Robbins.—p. 702.
Modified Pyeloplasty for Correction of Hydronephrosis Due to Extrinsic Obstructions at Ureteropelvic Junction: Case Report. B. Klotz.—p. 706.
Leukoplakia of Renal Pelvis. H. T. Low and H. E. Coakley.—p. 712.
Anatomy of Pararenal System of Veins, with Comments on Renal Arteries. B. J. Anson, E. W. Cauldwell, J. W. Pick and L. E. Beaton. —p. 714.
Hypertension Associated with Congenital Ureteral Valve. H. Ostry. —p. 738.
Blood Loss in Open Prostatic Surgery. A. E. Goldstein and S. W. Rubin.—p. 743.
Epispadias with Incontinence: Method of Treatment. H. B. Mays. —p. 749.
Cystitis Emphysematosa: with Report of Twelfth Human Case Diagnosed at Cystoscopy. Marie Ortmayer.—p. 757.
Extra-Ossification of Rectus Abdominalis Muscles Following Suprapubic Cystostomy. O. S. Lowsley and A. Gentile.—p. 763.
Osteitis Pubis. M. L. Rosenberg and S. A. Vest.—p. 767.
Erythroplasia of Queyrat: Report of Case. L. E. McCrea.—p. 776.
Neuromuscular Dysfunction of Urinary Tract. J. C. Kimbrough, D. K. Worgan and J. N. Furst.—p. 780.
Modified T Tube for Use in Surgical Repair of Ureteral Lesions. C. Aberhart.—p. 790.
Aid to Bladder Clot Evacuation. W. A. H. Councill and W. A. H. Councill Jr.—p. 792.
Attachment for McCarthy Resectoscope. A. P. Graham.—p. 794.

Laryngoscope, St. Louis

58:1265-1333 (Dec.) 1948. **Partial Index**

Antihistaminic Drugs in Treatment of Upper Respiratory Tract Infection. J. S. Gordon.—p. 1265.
Use of Furacin in Treatment of Aural Infections. C. C. Douglass. —p. 1274.
Use of Nitrofuran Therapy in External Otitis. J. R. Anderson and C. H. Steele.—p. 1279.
*Effect of Streptomycin on Cochlear and Vestibular Mechanism in Patients Treated Primarily for Renal Tuberculosis. H. H. Sirota and D. H. Jones.—p. 1287.
Constitutional Effects from Use of Sympathomimetic Drugs as Nasal Medication in Children. Report of Case of Privine Toxicity. L. R. House and W. C. Carey.—p. 1294.
Importance of Allergy in Ear, Nose and Throat Conditions. W. C. Spain.—p. 1299.
Removal of Secretions from Nasal Antrum: Part Played by Pressure When Irrigating Nasal Passage with Warm Saline Solution. Physical Hypothesis. J. J. Cantor.—p. 1307.
Control of Post-Tonsillectomy and Post-Adenoidectomy Hemorrhage by Double-Strength Posterior Pituitary Solution: Follow-Up Note. J. W. McLaurin.—p. 1315.

Streptomycin and Cochlear and Vestibular Mechanism.—Sirota and Jones present otologic observations on 16 patients who were treated with streptomycin for renal tuberculosis. All were given 1.8 Gm. of streptomycin daily in divided doses of 0.3 Gm. every four hours. Treatment was continued for 120 days, in all except 3 of the patients, in whom treatment had to be terminated after 66, 76 and 107 days, respectively, because of toxic effects. Symptoms like nausea, tinnitus and dizziness were recorded daily. Audiograms for both bone and air conduction and caloric tests were performed weekly. Follow-up studies were made in some cases up to a year after cessation of treatment. Nausea occurred in 10 of the patients. It varied in severity and did not persist after treatment with streptomycin was stopped. Dizziness or vertigo was the most frequent symptom, occurring in all but 1 of the patients. It usually commenced about three weeks after the onset of treatment and it persisted during a follow-up period of six to eleven months in 13 of the patients. There seems to be no correlation between the streptomycin blood level and the resultant toxic manifestations; the effect seems to be cumulative. Since it has been realized that the tubercle bacillus becomes resistant to streptomycin after a certain length of time, changes have been made in the dosage and the duration. At the authors' clinic patients are now treated with a daily dose of 1 Gm. for a maximum period of 42 days. It is hoped that this will reduce the undesirable side effects.

Medical Annals of District of Columbia, Washington

17:605-654 (Nov.) 1948

Plans of the Public Health Service. L. A. Scheele.—p. 605.
The Premature Infant: Review of 169 Cases Over a Five-Year Period at Children's Hospital. D. J. Judge, A. MacPherson and G. Maksim. —p. 610.
Do's and Don't's in Diagnosis and Treatment of Infertility in the Male. I. A. Pelzman.—p. 614.
*Meningo-Encephalitis Complicating Thoracic Herpes Zoster: Report of Case with Recovery. W. K. Billingsley Jr.—p. 617.

17:655-710 (Dec.) 1948

What the Physician Can Expect from Psychiatry. C. C. Burlingame. —p. 655.
What Is a Neurosis? O. S. English.—p. 661.
Adjustments to Age. W. M. Johnson.—p. 664.
The Uncoöperative Patient—A Therapeutic Challenge. J. D. Frank. —p. 668.

Meningoencephalitis Complicating Herpes Zoster.—Billingsley reports the case of a woman, aged 56, who had symptoms typical of encephalitis about seven days after the appearance of herpes zoster over the right thorax. The patient apparently suffered from encephalitis of the virus type. The sudden onset of delirium and light coma occurred without evidence of any preexisting or predisposing physical condition other than the herpetic rash. Focal neurologic signs were few. There was stiffness of the neck, with positive Brudzinski and Kernig reactions. The central nervous system seemed hardest hit in the conscious sphere or sensorium. This was characteristic in a percentage of the cases of herpetic encephalitis reported in the literature. Spinal fluid findings consisted of an increase in fluid pressure, increase in cells predominantly of the lymphocytic series, an increase in protein content and a moderate increase in spinal fluid sugar. In addition, the spinal fluid gave a zone 2 curve typical of meningoencephalitis.

Military Surgeon, Washington, D. C.

103:419-496 (Dec.) 1948

Presidential Address: The Skilful Leech. E. E. Hume.—p. 419.
Hospitalization in European Theater of Operations, U. S. Army, World War II. J. R. Darnall.—p. 426.
Medical Participation in Exercise Seminole. R. P. Williams and A. F. Robinson.—p. 440.
Volunteer Reserve Component of the Medical Corps, U. S. Navy, in Third Naval District. M. Brooks.—p. 449.
Obstruction of Duodenum in Case of Failure of Rotation of Intestine Associated with Unfused Pancreas and Mesenteric Bands. R. H. Allbee and J. L. Mayfield.—p. 452.
Shock: Clinical Review of Shock in Battle Casualties. D. E. Cassels. —p. 458.
Gall Bladder Drainage. N. B. Jaffe.—p. 464.
*Sanitary Studies of Automatic Washing Machines. S. B. Gilson and H. Bartfeld.—p. 470.

Sanitary Studies of Automatic Washing Machines.—Gilson and Bartfeld state that since the war the New York Port of Embarkation has added to its activities the transportation and interim housing of dependent families of army personnel overseas. At port installations clothing is cleaned either by the port quartermaster laundry or by the dependents themselves,

using automatic washing machines. The possible unsanitary nature of a public automatic washing machine is of general interest. Such equipment is commercially available for civilian use in many communities. The study of the public health aspects of such laundry facilities was undertaken. Home type automatic laundries were studied as to bacterial contamination. At the relatively low temperatures of the hot water supply, soap wash and repeated rinsing of clothing did not disinfect the clothing, and removal of the wash left the machine bacterially contaminated for the next user. The high and maintained temperatures of the quartermaster laundry did effectively decrease bacterial flora. Likewise, where similarly high temperatures were maintained in the automatic laundry machines, bacterial flora was equally decreased. In all cases the use of a dilute chlorine solution to wash out a laundry machine effected significant decontamination. It is recommended that laundry machines be equipped with a thermometer at the hot water inlet; also, where any question as to the adequacy of the hot water supply exists, a chlorine rinse should be used to insure bacteriologic decontamination.

Nebraska State Medical Journal, Lincoln

33:401-444 (Dec.) 1948

Surgical Treatment of Lesions of Colon. J. T. Reynolds.—p. 405.
Hematuria. R. B. Henline.—p. 410.
Some Common Dermatoses: Their Diagnosis and Treatment. S. A. M. Johnson.—p. 414.
Is Tonsillectomy Contraindicated During Epidemic of Poliomyelitis? J. C. Davis.—p. 420.
Pleural Effusions: Their Significance and Management. J. F. Gardiner. —p. 425.

New England Journal of Medicine, Boston

239:801-844 (Nov. 25) 1948

*Surgical Treatment of Mitral Stenosis: I. Valvuloplasty. D. E. Harken, L. B. Ellis, P. F. Ware and Leona R. Norman.—p. 801.
Medical Schools and Quality of Medical Care: Survey of Recent Trends. E. R. Weinerman.—p. 810.
Effect of Dicumarol on Erythrocyte Sedimentation Rate in Normal Men. J. L. Palmer and S. M. Gundersen.—p. 818.
Otolaryngology. C. G. Flake.—p. 819.
Epidemoid Carcinoma of Lung, Left Lower Lobe.—p. 834.
Transitional Cell Carcinoma of Sphenoid Sinus.—p. 837.

Surgical Treatment of Mitral Stenosis.—Harken and his associates present the following preliminary classification of patients with mitral stenosis and of the different types of surgery: group A, patients with low fixed cardiac output—mitral valvuloplasty; group B, patients with normal cardiac output—artificial interatrial shunt; group C, patients with uncontrollable tachycardia or with anginal pain—cardiac denervation. Five operations have been performed. Mitral valvuloplasty was performed in 2 patients of group A, with 1 death. Artificial interatrial defects were produced in 2 patients of group B, with survival in each case. Denervation of the heart by bilateral removal of the inferior cervical ganglions and the dorsal first to the fourth in 1 patient of group C was followed by improvement. These cases are reported to indicate the ability of such patients to withstand operation. The evaluation of any long term benefits attributable to these procedures must rest on objective criteria gained from hemodynamic studies carried out before and after operation. Four principles of the surgery of mitral stenosis have been evolved: The operation should be performed without dislocation of the heart from the position of optimum function; the buttonhole opening of the stenotic mitral valve should be approached from the auricular side so that the funnel directs the cutting instrument toward the leaflet margin; surgical enlargement of the stenotic orifice should be so planned that there is a minimum burden from associated regurgitation ("selective insufficiency") and maximum restoration of valvular function ("valvuloplasty"); and in the presence of mitral obstruction or regurgitation, undue acceleration of the heart rate must be prevented. An unsuccessful attempt at producing "selective insufficiency" is presented. It is suggested that tachycardia was an important factor in the disastrous outcome. A case report is presented of the survival of a patient with mitral stenosis following an operation designed to produce "selective insufficiency" and "valvuloplasty" of the mitral valve. The authors suggest the need for more extensive and more effective valvuloplastic technics.

New York State Journal of Medicine, New York

48:2543-2654 (Dec. 1) 1948

Complete Prolapse Following Hysterectomy. M. N. Hyams.—p. 2581.
*Misuse of Insulin in Diabetic Syndrome. H. Schreier and E. L. Sevringhaus.—p. 2587.
Spinal Analgesia and Anesthesia in Obstetrics. H. A. Snell.—p. 2590.
Habitual Abortion. C. T. Javert.—p. 2595.
Topical Anesthesia. F. C. Combes and Rose B. Saperstein.—p. 2599.
Management of Problems Associated with Prolonged Labor. D. E. Reid. —p. 2601.
Present Status of Preservation of Anal Sphincter in Radical Operations for Carcinoma of Rectum and Rectosigmoid. A. O. Wilensky. —p. 2605.
*New Method in Management of Acute Anterior Poliomyelitis. E. Smith, D. J. Graubard, N. Goldstein and W. Bikoff.—p. 2608.
Diethylstilbestrol in Treatment of Idiopathic Repeated Abortion. B. Lapan.—p. 2612.
Inulin Clearance in Altered Endocrine State. J. Weissberg and T. H. McGavack.—p. 2615.
Sodium Morrhuate with Sodium Sulfadiazine in Treatment of Varicose Veins. H. L. Myers.—p. 2619.
Hodgkin's Disease Involving the Nose. H. L. Cahn.—p. 2622.

Misuse of Insulin.—Schreier and Sevringhaus say that in the older age group the use of insulin requires great care. They suggest that if diabetes develops in an obese person he should not be given insulin unless acetonuria coexists with the glycosuria. Weight reduction is paramount in such cases. Obesity is a prediabetic state in such persons. One may well permit the optimal weight to be established by managing the diabetes with a minimal diet without insulin. Out of 120 diabetic patients, weighing over 180 pounds (81.6 Kg.) each, 108 (90 per cent) were treated without insulin by one of the authors. Nine illustrating case histories are presented. The authors stress that the use of insulin in older, obese diabetic persons frequently becomes an easy substitute for education of the patient in the use of an appropriate diet. Consequently, as more food is taken, the insulin is increased because of continued glycosuria. The results include uneconomic use of insulin with possibly dangerous reactions. Obesity and hyperglycemia persist despite the insulin dosage; this probably could have been minimal or the patients could have done without insulin completely.

New Management of Poliomyelitis.—Smith and his associates regard the alleviation of pain and spasm as one of the major problems in the management of acute poliomyelitis. They believe that vasospasm is a defense mechanism of tissue response. When an irritable focus is established in the periphery, the organism reacts by vasospasm and exudate. These usually subside at the time healing is complete. However, if an irritative focus persists, a reflex arc producing pain and spasm is established. This arc may perpetuate itself through the internuncial pool and eventually involve the sympathetic motor neuron cells in the lateral horn. Interruption of the cycle of reflexes is, therefore, the method of choice. The results achieved in cases of trauma with the intravenous administration of procaine hydrochloride have indicated that the symptom complex of pain may be controlled in this way. The treatment described was used in 79 of 159 patients with poliomyelitis. Four patients were treated by the intravenous administration of procaine hydrochloride; 73 were treated with priscol hydrochloride® (2-benzyl-4, 5-imidazoline hydrochloride) and 2 with diethylaminoethanol. Acute pain was relieved in all cases within twenty minutes to eight hours, procaine hydrochloride giving the quickest and diethylaminoethanol the slowest response. Increasing relief of pain was obtained with succeeding administration to the point of complete relief, at which time the patients were diseharged or transferred to orthopedic institutions. Although relief of pain and spasm was obtained in all cases, this report must be considered as a preliminary study.

North Carolina Medical Journal, Winston-Salem

9:547-598 (Nov.) 1948

Psychic Disturbances in Children with Chronic Illness. G. A. Watson. —p. 547.
General Remarks on Pott's Fracture. L. D. Baker.—p. 550.
Changes in Gastric p_H Following Administration of Fruit Juice to Patients with Peptic Ulcer. J. D. Yeagley and D. Cayer.—p. 555.
Present Trends in Laboratory Procedures. J. H. Hamilton.—p. 561.
Fibromyoma of Cervix. B. E. Thomas.—p. 565.
In Vitro Observations on Antibacterial Activity of Aureomycin. M. Meads, Nancy M. Haslam and K. M. Stevens.—p. 568.
Pathogenesis, Diagnosis, and Treatment of Varicose Veins and Varicose Ulcers: Analysis of 200 Cases Treated by Upper Saphenous Ligation. R. P. Miller and T. D. Sparrow.—p. 574.
Present Status of Study of Human Fatigue. A. T. Miller Jr.—p. 580.

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Pediatrics, Springfield, Ill.

2:643-762 (Dec.) 1948

Combined Use of Angiocardiography and Cardiac Catheterization in Diagnosis of Congenital Anomalies of Cardiovascular System. A. L. Johnson and D. L. McRae.—p. 643.
Absorption of Oily and Aqueous Preparations of Ester and Alcohol Vitamin A by Normal Children and Children with Various Diseases. Augusta B. McCoord, C. P. Katsampes, F. Lavender and others. —p. 652.
Galactose Studies in Infant with Idiopathic Galactose Intolerance. L. Greenman and J. C. Rathbun.—p. 666.
Multiple Cystic Tuberculosis of Bone. M. B. Kreidberg and D. F. Downing.—p. 673.
Outbreak of Nausea, Vomiting and Diarrhea on Maternity Service; Transmitted to Child Caring Institution and to Private Homes. H. Abramson and H. T. Fuerst.—p. 677.
Congenital Ankyloglossia (Tongue-Tie) Associated with Glossoptosis (Retruded Mandible) and Palatum Fissum (Cleft Palate). H. May and L. T. Chun.—p. 685.
Rheumatic Pneumonitis in Childhood. H. B. Levy, J. D. Coffey and C. E. Anderson Jr.—p. 688.
Juvenile Rheumatoid Arthritis. L. M. Lockie and B. M. Norcross. —p. 694.

Union Médicale du Canada, Montreal

77:1397-1508 (Dec.) 1948

*Extragenital Chorio-Epithelioma and its Relationship to Latent Teratoma of Testicle. J. L. Riopelle.—p. 1399.
Symptomatologic Significance of Left Ventricular Kinetics. R. Heim de Balsac.—p. 1408.
Personal Contribution to Study of Treatment of Rheumatoid Arthritis with Gold Salts. L. Mantha.—p. 1416.
BCG Vaccination with Isolation. A. Guilbeault.—p. 1429.
*Treatment of Chronic Glaucoma with Nicotinic Acid. C. Monfette. —p. 1433.
Complications of Acute Mastoiditis Masked by Penicillin; Surgical Intervention and Recovery. P. Fugère.—p. 1436.
Vitamin D₂ and Old Tuberculin in Keratitis of Tuberculous Nature. J. Boulanger.—p. 1439.
Cirrhosis and Ascites. M. Bélisle.—p. 1442.

Extragenital Chorioma.—Riopelle reports 1 case of extragenital chorioma associated with gynecomastia in a man aged 23. A positive Ascheim-Zondek reaction assisted in the clinical diagnosis. The patient died three weeks after his admission to the hospital. Necropsy established the diagnosis. Death was attributed to hemoperitoneum secondary to the rupture of a metastasis of the liver. The necropsy revealed a small teratoma in the right testicle which was not observed on clinical examination in spite of careful scrutiny. A latent testicular teratoma or a scar considered a vestige of an absorbed teratoma was observed on examination of the testicles in 5 cases of extragenital chorioma in man mentioned in the literature. The author's case is peculiar because it presented an embryonal teratoma with cells resembling those of pure, differentiated chorioma rather than a simple scar or vestiges of an adult teratoma. This observation corroborates Prym's concept of a causal relationship between extragenital chorioma and the testicular lesion. It further suggests that extragenital chorioma in man might be reintegrated in the frame of tumors of the gonads. In the presence of a neoplasm of doubtful origin one should consider the possibility of a small malignant teratoma of the testicle and carry out a careful examination of this organ.

Nicotinic Acid in Chronic Glaucoma.—Monfette treated with nicotinic acid 2 women aged 55 and 56 respectively who had chronic glaucoma. This vasodilator has been employed by Gallois in France for twelve years with satisfactory results in cases of glaucoma in which the intraocular pressure did not exceed 50 mm., particularly in patients with simple chronic glaucoma in the early stage in which the vascular lesions are not yet accentuated. Repeated vasodilator tests with intravenous doses of 2 to 3 mg. of the drug two or three times within one week must precede the treatment. Each test is followed by tonometry every fifteen minutes for one hour; each period of tonometry is preceded by measurements of the central visual acuity. Treatment consisted of 1 mg. of nicotinic acid in a teaspoonful of distilled water, 2 teaspoonfuls daily. In both patients vision was improved from 15/30 to 15/20 and tension was reduced from 26 to 20 in one case and from 25 to 19 in the other. Headache disappeared and so did the clouds before the patients' eyes. Although 2 cases are not sufficient to draw any conclusions, they seem to support Gallois's results.

United States Naval Med. Bulletin, Washington, D. C.

48:823-980 (Nov.-Dec.) 1948. **Partial Index**

Plastic Repair of Surface Defects of Lower Extremity. O. W. Wickstrom.—p. 823.
Massive Condylomata Acuminata. W. N. New and W. C. Marsh. —p. 831.
Electrodiagnosis in Peripheral Nerve Lesions. S. D. Graham.—p. 838.
Detection of Cancer Cells: Smear Technic. K. P. Knudtson.—p. 843.
Primary Mumps Meningo-Encephalitis: Review of Literature and Report of Case. K. P. Bachman.—p. 854.
*Use of Hyaluronidase. A. T. Henderson, S. L. Wallace and R. E. Faucett.—p. 865.
Toxicity of Local Anesthetics. J. D. Walters.—p. 871.
Acute Appendicitis Developing During Penicillin Therapy for Suppurative Infection: Report of Case. J. R. Weisser and A. T. Wagner. —p. 879.
Acute Appendicitis During Penicillin Therapy for Syphilis: Report of Case. M. L. Gerber.—p. 881.
*Reactions from Penicillin with Case Report of One Fatality. E. E. Barksdale, D. M. Frost and J. J. Nolan.—p. 883.
Delayed Reaction to Penicillin: Report of 4 Cases. J. L. Wells and W. P. L. Myers.—p. 887.
Benign Tumors of the Testis: Report of Case. S. Johnson.—p. 893.
Mumps Orchitis Treated with Reactivated Pooled Plasma: Report of 5 Cases. R. E. Huie Jr.—p. 897.
Glomus Tumor with Report of Case. R. A. Downs Jr.—p. 901.
Epidemic Cerebrospinal Meningitis (Waterhouse-Friderichsen's Syndrome): Report of 2 Successfully Treated Cases and 1 Fatal Case. F. W. Meyer Jr.—p. 907.
Occlusion of Central Retinal Vein: Report of Case Treated with Heparin. R. C. Boyden and H. A. Kettering.—p. 912.

Use of Hyaluronidase.—Henderson and his associates point out that it is frequently necessary, especially in wartime situations, to administer large amounts of fluids parenterally in a short time. After the atomic bomb blasts in Hiroshima and Nagasaki many patients had burns and the vomiting and diarrhea of radiation sickness and required supportive fluid therapy. Experienced medical personnel to administer fluids intravenously to all patients were not available. In such circumstances it would appear to be life saving to provide a technically simple method for the administration of plasma, dextrose and isotonic solution of sodium chloride. Hyaluronidase has recently been shown to accelerate the absorption of fluids given subcutaneously. Isotonic solution of sodium chloride can be given as rapidly as 100 drops per minute, or 400 cc. in an hour. The enzyme hyaluronidase hydrolyzes hyaluronic acid; the latter has been isolated from the viscid ground substance among the cells of the connective tissue. This ground substance acts as a barrier to penetration and the spread of foreign material and fluids in the connective tissue. The hydrolysis of hyaluronic acid by hyaluronidase therefore decreases the viscosity of the ground substance, permitting fluids to spread through the connective tissue, reach a greater capillary bed and be absorbed into the general circulation more readily. The technic of administration is simple; 0.02 mg. of hyaluronidase in solution is injected into the hypodermoclysis set.

Reactions from Penicillin.—According to Barksdale and his associates penicillin is capable of producing two types of reactions: (1) therapeutic shock as manifested by a Herxheimer reaction in syphilis, and (2) an allergic reaction. A Herxheimer-like reaction may also occur in nonsyphilitic diseases due to penicillin-susceptible organisms. Penicillin has an amino-acid-like structure and can act as an allergin just as any other protein. In cases of early syphilis treated with penicillin in a naval hospital, a Herxheimer reaction occurred in approximately 30 per cent of the cases. The occurrence of a Herxheimer reaction in early syphilis, however, is not an indication to discontinue the penicillin, but in late syphilis this reaction may be serious and even fatal. Urticaria is a frequent complication of penicillin therapy, and a mild exfoliative dermatitis is frequently superimposed on urticaria. Penicillin should not be used in fungous infections, because many cases of fungous infections are made worse by it. In 1 patient with fungous infection of the feet and stasis eczema a mild cellulitis later developed, and he was given penicillin. In turn urticaria, exfoliative dermatitis and hemolytic Staphylococcus septicemia developed, and the patient died. The history of this patient illustrates that treatment with penicillin in a previously sensitized patient is an extremely dangerous procedure. In the early days of penicillin therapy it was felt that the reaction rate was practically nil, but this cannot be substantiated now. The over-all reaction rate is approximately 8 to 10 per cent. The majority of these reactions are mild and transitory, but serious reactions can occur.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:927-968 (Nov. 27) 1948

Pharmacology of Failing Human Heart. J. McMichael.—p. 927.
Procaine Penicillin: Effect of Single Daily Injections. P. F. Jones and R. A. Shooter.—p. 933.
Crystalline Anti-Pernicious-Anemia Factor in Treatment of Two Cases of Tropical Macrocytic Anemia. J. C. Patel.—p. 934.
Inoculation Hepatitis. H. Malmros, O. Wilander and B. Herner.—p. 936.
*Syringe-Transmitted Jaundice: Inquiry and Plea. R. S. Morton.—p. 938.
Interinnomino-Abdominal Operation: Report of Case Subsequently Fitted with Prosthesis. D. Mitchell and J. A. Baird.—p. 940.
Spontaneous Rupture of Muscle as Complication of Rheumatoid Arthritis. G. D. Kersley.—p. 942.

Syringe-Transmitted Jaundice.—The investigation presented by Morton was carried out in a venereal disease clinic where sterilization and intravenous technic were believed to be adequate and yet the incidence of jaundice was high. In boiling the syringes, it was noted that they were not always completely submerged in the boiling water and boiling times varied between ten and thirty minutes. Preparation of the injection material in a gallipot was carried out by a male orderly, using distilled water from an upturned flask. The charged syringe was handed to the medical officer who gave the injection and then returned the syringe to the orderly who washed it out in tap water and placed it in the "dirty bowl." It was observed that at the end of almost every session the number of syringes in the "dirty bowl" did not correspond to the total number of injections given during the session. It could be shown that all patients who contracted jaundice had at least three of their intravenous injections on a day when patients incubating the disease were having similar treatment. Possibilities for transference of hepatitis arise from the re-use of unsterilized syringes, the repeated use of the gallipot without sterilization, the drawing up of water from the "dirty bowl" into used syringes and the inadequate boiling of syringes. The handling by the orderly of both dirty and clean material cannot be overlooked. The author makes recommendations for proper sterilization.

Clinical Science, London

7:109-184 (Dec.) 1948

Desoxycorticosterone-like Activity Induced by Adrenocorticotropin in Man. F. T. G. Prunty, P. H. Forsham and G. W. Thorn.—p. 109.
*Investigation and Diagnosis of Steatorrhea. L. P. R. Fourman, G. Higgins, P. Quelch and others.—p. 121.
Comparison of Estimates of Circulating Red Blood Cell Volume Given by Ashby Marked Red Cell Method and T 1824-Hematocrit Method in Man. D. W. H. Barnes, J. F. Loutit and E. B. Reeve.—p. 135.
Observations on Estimate of Circulating Red Blood Cell Volume in Man Given by T 1824 and Hematocrit, with Special Reference to Uncorrected Dye Loss from Circulation. D. W. H. Barnes, J. F. Loutit and E. B. Reeve.—p. 155.
Capillary Strength Tests in Scurvy and Their Reactions to Vitamin C and Vitamin P Therapy. S. Lazarus, H. N. Munro and G. H. Bell.—p. 175.

Steatorrhea.—Fourman and his associates investigated fat excretion in 6 normal subjects, 4 patients with steatorrhea and 3 other patients. Fecal nitrogen losses were also determined in the normal subjects, and in some of the patients. The authors are of the opinion that balance studies, in which the output of a substance is compared with the intake, must usually be carried out for a period of at least twelve days. Fat excretions over four day collection periods have a coefficient of variation of about 30 per cent. The estimated probable upper normal limit of fat excretion in four days on a 70 Gm. fat diet was 23 Gm. Estimation of the four day excretion of fat is usually adequate for the diagnosis of steatorrhea, but where the effects of therapy are being studied the twelve day period must be used. Pancreatic steatorrhea is distinguished from steatorrhea of intestinal origin by the high fecal nitrogen loss. After treatment with folic acid as well as liver and yeast, fat absorption improved gradually to near normal in 1 patient with tropical sprue; there was no change in fat absorption after several months' folic acid treatment in 2 patients with idiopathic steatorrhea.

Glasgow Medical Journal

29:371-394 (Nov.) 1948

Potential Diabetes: Report of Thirteen Cases. Elizabeth A. Marshall.—p. 371.
*Injury to Brachial Plexus During General Anesthesia: Report of Four Cases. R. N. Sinclair.—p. 378.

Injury to Brachial Plexus During General Anesthesia.—Sinclair says that in a large general hospital during the past twelve months injury to the brachial plexus as a complication of operation under general anesthesia has occurred in 4 patients. In 3 patients the paralysis followed lengthy abdominal operations, all of which necessitated transfusions on the operating table. The transfusions in each case were given into a left antecubital vein, the arm being abducted to a right angle, and in each case the subsequent paralysis was left sided. On the fourth occasion the condition occurred in a patient undergoing radical mastectomy. The arm during the operation was held in extension and hyperabduction at about 135 degrees. The author believes that in these cases simple overstretching of the plexus with resulting ischemia of the nerve fibers was the main cause of damage. It is highly improbable that the plexus can be injured by "nipping" between the clavicle and the first rib. While it is true that when the arm is in a position of extreme abduction and extension the plexus tends to be compressed by the clavicle against the attachment of scalenus medius to the first rib, resulting lesion is caused primarily by tension on the plexus. The profound muscular relaxation associated with general anesthesia for abdominal surgery will favor the development of strain on the nerve cords, due to the loss of protective muscle tone from the musculature of the shoulder girdle. It is tempting to postulate that the use of curare to secure complete relaxation of muscles in 3 of the cases was a causative factor. The author does not accept this view, but prefers to stress the liability of the brachial plexus to injury when the patient is adequately relaxed by any form of general anesthesia.

Journal of Hygiene, London

46:239-348 (Sept.) 1948. **Partial Index**

Inactivation of Hemagglutinins and Infectivity of Influenza and Newcastle Disease Viruses by Heat and by Formalin. C. M. Chu.—p. 247.
*Temporary and Chronic Carriers of Salmonelli Typhi and Salmonella Paratyphi B. T. M. Vogelsang and J. Bøe.—p. 252.
Bacteriologic Interpretation of Vaginal Smears. Nancy Laughton.—p. 262.
Observations upon Bacterial Nucleus. K. A. Bisset.—p. 264.
Study of Coliform Organisms in Melbourne Water Supply and in Animal Feces, with Observations on Their Longevity in Feces and in Soil. Doris A. Bardsley.—p. 269.
Studies in Dynamics of Disinfection. R. C. Jordan and S. E. Jacobs.—p. 280.
Conglutination Phenomenon: IV. Importance of Choice of Complement when Examining Antiserums for Presence of Complement-Fixing or Complement-Absorbing Antibodies. R. R. A. Coombs and N. H. Hole.—p. 296.
Notes on Climate and Morbidity. R. W. Parnell.—p. 311.

Carriers of Typhoid Bacilli.—The studies reported by Vogelsang and Bøe of Bergen, Norway, were made on 417 patients with typhoid and on 1,055 patients with paratyphoid B observed over a period of twenty-eight years. Infections with Salmonella typhi were found to be considerably more serious than infections with Salmonella paratyphi B. The mortality from S. paratyphi B was low in children and young persons, but reached 5 per cent in patients over 30. Infection with S. typhi caused a mortality of 8.5 in children and rose to a rate of 16 per cent at higher ages. The percentage of temporary excreters was approximately the same for the typhoid and paratyphoid B patients—40 per cent were men and 60 per cent were women. The number of temporary carriers rose with the patients' age. Of the temporary carriers, only one tenth discharged the specific germ for more than four weeks after the cessation of the illness. After an interval of three months, it is exceptional for the carrier state to cease spontaneously. This interval may therefore be regarded as the dividing line between the temporary and the chronic carrier state. Of the patients with typhoid 3.3 per cent, and of the patients with paratyphoid B 1.9 per cent became chronic carriers. Thirty-one of them were fecal and only one was a urinary excreter. The chronic carrier state was extremely rare in children and young persons; it increased with age, 12 of the 32 chronic carriers being over 50. Eleven of these 12 were

women, 5 being typhoid and 6 paratyphoid B carriers. Cholecystectomy was performed on 14 chronic carriers. In all the cases in which the carrier state had lasted for at least a year, gallstones and chronic cholecystitis were found, and the causal organism was obtained in pure culture from the gallbladder. The operation failed to counteract the carrier state in 1 of the patients.

Journal of Pathology and Bacteriology, Edinburgh

60:157-356 (April) 1948. **Partial Index**

Incidence of Pathogenic Staphylococci in Throat, with Special Reference to Glandular Fever. A. C. P. Campbell.—p. 157.
Rapid Identification of Proteus. S. D. Elek.—p. 183.
Adamantinoma of Jaw with Pulmonary Metastases. G. E. Waterworth and T. H. Pullar.—p. 193.
Anti-Hemolytic Action of Viridans (Alpha) Variants of Hemolytic Streptococci. A. Isaacs.—p. 199.
Bullet Embolism: Case of Pulmonary Embolism Following Entry of Bullet into Right Ventricle of Heart. D. H. Collins.—p. 205.
Pathogenesis of Glomerulo-Nephritis: Re-Investigation of Auto-Immunisation Hypothesis. J. H. Humphrey.—p. 211.
Immunologic Studies with Group-B Streptococci. I. H. Pattison.—p. 219.
Effect of Castration on Action of Some Barbiturates. G. R. Cameron, G. H. Cooray and S. N. De.—p. 239.
Clotting of Human Citrated Plasma by Gram-Negative Organisms. Elizabeth M. Harper and Nancy S. Conway.—p. 247.
*Anthrax in Laboratory Worker, with Observations on Possible Source of Infection. M. A. Soltys.—p. 253.
Lining of Healed but Persistent Abscess Cavities in Lung with Epithelium of Ciliated Columnar Type. D. M. Pryce.—p. 259.
Large-Cell Small-Acinar Thyroid Tumor of Langhans and Incidence of Related Cell Groups in Human Thyroid. B. Lennox.—p. 295.
Quantitative Description of Fragility of Erythrocyte and Its Application to Study of Acholuric Jaundice. G. Discombe.—p. 315.

Laboratory Anthrax.—Soltys' student became infected during or after a practical class in which he handled fixed and stained anthrax smears. A typical lesion developed on his chin at the site of a cut made during shaving, and virulent anthrax bacilli were isolated from it. The infection was mild and the student recovered. Since this accident suggested that despite fixation and staining one or other of the preparations contained viable organisms, it was decided to collect all anthrax slide preparations from the students in order to check this possibility. It was found that spores of Bacillus anthracis in films on slides may withstand the temperature of the Bunsen flame for 5 to 6 seconds. None of the common stains and methods of staining used in bacteriologic technic destroyed all spores in films on glass slides. Mercuric chloride solution (1:1,000) killed the spores of B. anthracis smeared on slides after these had been immersed for 5 minutes. Spores were also destroyed by a saturated solution of potassium permanganate; however, the permanganate rendered the slide unsuitable for further staining. Evidence was obtained that viable spores may escape into the atmosphere if spore suspensions of B. anthracis in saline solution are heated in open containers.

Journal of Tropical Medicine and Hygiene, London

51:221-242 (Nov.) 1948

Is the Gametocyte Production of Plasmodium Vivax Influenced by Elimination of Mosquito Passage? J. Bijlmer and H. Kraan.—p. 222.
Rhodesian Sleeping Sickness in Kenya Colony. R. B. Heisch.—p. 225.
Comparison of Hematologic Results in Europeans and Africans Suffering from Active Malaria. J. I. Roberts.—p. 228.

Lancet, London

2:797-836 (Nov. 20) 1948

Parenthood and Social Change. R. M. Titmuss.—p. 797.
Clinical Assessment of Peripheral Nerve Injuries: Tinel's Test. W. R. Henderson.—p. 801.
*Safety of Intraperitoneal and Intratubal Penicillin. A. Westman.—p. 805.
Antibisan in Perennial Vasomotor Rhinorrhea. T. J. Reid and R. B. Hunter.—p. 806.
*Myanesin in Tetanus. J. A. Torrens, P. M. Edwards and M. W. W. Wood.—p. 807.
Acute Toxic Encephalopathy of Unknown Etiology in 2 Brothers. E. S. Frazer.—p. 809.
Thrombosis of the Abdominal Aorta: Apparently Caused by Pressure from Vertebral Osteophyte. G. E. Pinkerton.—p. 811.

Intraperitoneal and Intratubal Penicillin.—Westman felt that before using penicillin in the fallopian tubes and the pelvic cavity it was necessary to ascertain whether penicillin causes any irritation which might bring about adhesions or other damage that would interfere with the migration of the ovum. In experiments on rabbits penicillin was injected directly into the pelvic cavity. In women penicillin was instilled via the fallopian tubes into the pelvic cavity with the instruments used in salpingography at different times before a laparotomy. Evidence was obtained that penicillin does not cause either toxic or chemical damage interfering with migration of the ovum and that it can be safely used in the local treatment of inflammation in the reproductive organs. This opens up new therapeutic possibilities of combating salpingitis and its sequelae.

Myanesin® in Tetanus.—Torrens and his associates say that the favorable effects obtained with myanesin® (3-ortho-toloxy-1, 2-propanediol) in 2 cases of tetanus by another observer induced them to publish a third case of tetanus in which myanesin® proved of great benefit. The action of myanesin® is similar to that of curare. The patient was a man, aged 62, whose bald head was cut when a glass jar fell from a shelf. A child had played with this jar in a garden, where horse manure had been piled the previous year. Four days later the patient's face began to feel tight, but spasms of pain did not appear for another eleven days. After hospitalization he was first given morphine. When a spinal puncture was to be done, relaxation was necessary and so myanesin® diluted in water was injected intravenously. Since this caused complete relaxation from all spasms, it was decided to continue myanesin® as a therapeutic agent. An initial intramuscular injection of 200,000 units of antitetanus serum was given, and penicillin, 30,000 units, was injected every four hours from May 28 to June 8. Myanesin® was given in 1 Gm. doses two or three times a day for nine days. The toal dose was 22 Gm. (7 Gm. intravenously and 15 Gm. intramuscularly). A few doses of morphine and barbiturates were also given, but these were insignificant. Myanesin® served to control the spasms. The patient was freed from pain for long periods and yet remained fully conscious and able to drink, owing to the relaxation of the masseter muscles. Nursing was made easy.

2:837-876 (Nov. 27) 1948

Carcinogenic and Anticarcinogenic Substances. E. C. Dodds.—p. 837.
*Surgery in Hemophilia: Case of Spinal Subdural Hematoma Producing Paraplegia. F. Schiller, G. Neligan and O. Budtz-Olsen.—p. 842.
Air Infection with Dust Liberated from Clothing. J. P. Duguid and A. T. Wallace.—p. 845.
Resistance to Proguanil (Paludrine) in Mammalian Malaria Parasite (Plasmodium Cynomolgi). F. Hawking and W. L. M. Perry.—p. 850.
Simplified Flocculation Tests for Differential Diagnosis of Jaundice. E. B. Love and C. A. Mawson.—p. 850.
Multiple Abdominal Catastrophes. S. Glaser.—p. 851.
Reducing Substances in Cervical Mucus. R. Milton and B. P. Wiesner.—p. 852.

Surgery in Hemophilia.—Schiller and his associates report a 16 month old boy who had a flaccid paralysis of six days' duration. He came from a hemophilic family. The disorder was diagnosed as a compression of the spinal cord of uncertain origin. Laminectomy was decided on, because decompression seemed the only possible treatment if the child were ever to walk again. The lowest five thoracic and the second lumbar laminas were removed. The dura was blue and tight. When it was opened, clot bulged through the incision, but it nowhere extruded spontaneously, being too solid. In places the clot was up to 15 mm. thick. The cord was severely flattened below the lumbar enlargement, but it assumed its normal shape after the clot had been removed. The paraplegia was partly cured after the operation. Hematorrhachis is one of the rarest complications of hemophilia and is usually fatal if not dealt with surgically. The surgical risk in hemophilia can be greatly diminished by giving small daily blood transfusions, continued irrespective of the hematologic findings until the wound has healed. Pressure on a vital organ presents the greater danger to the hemophilic patient.

Practitioner, London

161:353-436 (Nov.) 1948. **Partial Index**

Intravenous Anesthesia. W. W. Mushin.—p. 353.
Pre-Anesthetic Medication. W. D. Wylie.—p. 379.
Facial Injuries in Road Accidents. P. Clarkson.—p. 396.
Pruritus in Industry. A. V. Magee.—p. 409.
Current Therapeutics: XI. Modern Treatment of Epilepsy. A. J. M. Butter.—p. 417.

Bibliotek for Læger, Copenhagen

140:25-56 (March-April) 1948

*Acute Nephritis. Study of Its Clinical Aspects Especially with Regard to Prognosis. J. Øster.—p. 25.

Acute Nephritis.—Øster says that acute nephritis, like rheumatic fever, is an allergic disease which occurs after infection predominantly with hemolytic streptococci and may take a chronic course. The joint disorders of transient kind in many cases also suggest a disorder related to rheumatic fever. The disease most often occurs in younger persons, which is explained by the frequency of infection with hemolytic streptococci in that age group. Of his 243 cases, representing all forms of acute nephritis, 81.8 per cent were in persons under 25. In 74.1 per cent of the cases infection of the upper respiratory tract preceded the nephritis. The maximum incidence was in the winter. Familial occurrence was seen twice. Three patients (1.2 per cent) died in the acute stage. The further fate of 137 of the 191 patients is known. Follow-up from five to twenty-four years after the acute stage showed that 12 had died, 8 of them from uremia. Eighty-nine and five-tenths per cent were well, and 3 patients had chronic nephritis. Three had orthostatic proteinuria and in 14 the blood pressure was increased but the kidneys were sound. In all but 3 of the patients who had died or had chronic nephritis, insidious onset and protracted course without tendency to recover during hospital treatment were so evident that postinfectious nephritis with sudden onset and regular course is believed to be a distinct entity with good prognosis, clinically and prognostically in definite contrast to the nephritis with insidious start, which from the first tends to become chronic.

Chinese Medical Journal, Shanghai

66:351-408 (July) 1948. **Partial Index**

Primary Carcinoma of Duodenum: Report of Case. M. H. Hu, C. K. Hsieh and C. H. Feng.—p. 351.
Ritter's Disease: Report of Case Treated with Vitamins and Penicillin with Recovery. J. Chen and T. Y. Shen.—p. 356.
Note on Treatment of Amebic Infection with Brucea Javaniga Seeds. H. J. Smyly.—p. 363.
*Clinical Observations on 687 Cases of Cholera. S. C. Tao, M. O. Woo and W. P. Loh.—p. 377.
Incidence of Syphilis Among Prostitutes and Cabaret Hostesses in Tsingtao. D. Lei.—p. 389.
Study on Typhoid Fever in Children in Kweichow: Analysis of 126 Cases. Y. E. Kao.—p. 391.
Involvement of Nervous System in Mumps. C. W. Wang, K. T. Lee and Y. Chao.—p. 398.
Typhus Fever with Bilateral Gangrene of Feet. P. J. Wang.—p. 401.
Hydatidiform Mole with Premature Child. C. C. Kuo.—p. 403.

Clinical Observations on 687 Cases of Cholera.—Tao and his associates report a study of 687 cases of cholera treated in a Shanghai hospital during an epidemic of cholera in the summer of 1946. The ages of the patients ranged from 3 to 77 years. The onset of the cholera was usually abrupt, and about half of the patients were hospitalized within twelve hours after the onset of the symptoms. Diarrhea, vomiting and oliguria or anuria were the most frequent symptoms. Thirst, dehydration and muscular cramps were also frequently observed. There were 32 deaths, a mortality of 4.7 per cent, which compares favorably with mortality rates in other reports. Collapse caused death in 17 cases and uremia in 8 cases; other causes of death were hyperpyrexia and pneumonia. Treatment consisted chiefly of the intravenous administration of isotonic solution of sodium chloride and of 0.5 per cent solution of sodium bicarbonate in order to counteract dehydration and collapse. Forty-one patients were treated with sulfadiazine, and the results were compared with those in 41 control cases. The general impression was that treatment with sulfadiazine cut short the duration and reduced the severity of vomiting and diarrhea and thus shortened the course of illness. By so doing, it probably also helped to lower the incidence of uremia. Chemotherapy can in no way replace the use of saline infusion necessary for combating dehydration and collapse during the acute stage.

Klinische Wochenschrift, Heidelberg

26:545-576 (Sept. 15) 1948. **Partial Index**

*Sugar Formation and Protein Catabolism Under Influence of Adrenocortical Hormone. K. Oberdisse and R. Werner.—p. 549.
Action of Strophanthin on Slackening of Cardiac Ventricle. E. Frey.—p. 553.
*Investigations with Radioactive Copper in Rats with Anemia Induced by Diet. G. Schubert, W. Maurer and W. Riezler.—p. 555.
Titrimetric Method for Quantitative Estimation of Capacity of Duodenal Juice to Transform Starch into Sugar. E. Balzer and K. Schuster.—p. 559.
Agglutinins of Spirochetes in Cerebrospinal Fluid in Syphilis of Central Nervous System. G. B. Roemer.—p. 561.

Sugar Formation and Protein Catabolism Under Influence of Adrenocortical Hormone.—Oberdisse and Werner cite observations by other investigators which suggest that the hormone of the adrenal cortex under certain conditions is capable of facilitating the formation of sugar from protein. This raises the question of the advisability of administering the adrenocortical hormone or one of its synthetics in times when protein intake is limited. The adrenocortical hormone has been used in recent years not only for substitutional purposes, but also in other conditions. The authors decided to investigate whether the administration of adrenocortical hormone would result in an increased elimination of nitrogen in healthy human subjects. Young persons were given a diet consisting of large quantities of carbohydrates and fat and which contained only 1.5 Gm. of protein nitrogen. The caloric excess was 206 per cent of the basal metabolic rate. In the course of eight to eleven days with this diet the nitrogen elimination averaged 3.2 Gm. This corresponded to a catabolic quota of 0.046 Gm. of nitrogen per kilogram of body weight. This elimination of nitrogen did not increase under the influence of desoxycorticosterone acetate. There was no indication that in persons who received plenty of carbohydrates the administration of desoxycorticosterone resulted in the formation of sugar from proteins and likewise in an increased breakdown of proteins, as had been observed in starving experimental animals under the influence of cortical hormone. There was always a decrease in the elimination of nitrogen from 3.2 to 2 Gm. on the average; this is believed to be due to reduced urinary output, which is indicated also by increase in body weight.

Radioactive Copper in Studies on Anemic Rats.—Schubert and his associates say that American investigators demonstrated in 1929 that the trace element copper has an activating effect on iron in rats in which anemia has been experimentally produced by feeding with cows' milk. In order to clarify the metabolic chemistry involved the authors decided to investigate this problem with the aid of radioactive copper (C^{64}). It was found that in rats made anemic by being fed exclusively with cows' milk the radioactive copper content of the blood plasma is only about half as high as in controls. This is believed to be due to the increased linkage tenacity of the endogenic copper ions resulting from a reduced catalytic activity of the blood. The liver shows no increase in the copper exchange, but in the bone marrow and the kidney the exchange rate of copper is increased. The radioactive copper content of the blood cells of the anemic animals, in contradistinction to that of the controls, likewise remains uninfluenced.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3485-3596 (Oct. 30) 1948. **Partial Index**

*Hereditary Clinodactyly. L. S. Wildervanck.—p. 3491.
Two New Reflexes. F. Grewel.—p. 3504.
Noise Deafness in Aviators. W. J. Pothoven.—p. 3506.
*Clinical and Endocrinologic Observations in Patients with Metastases from Mammary Carcinoma Treated with Testosterone Propionate. H. Pelser, E. Dingemanse, E. G. Godfried and J. Groen.—p. 3511.

Hereditary Clinodactyly.—Wildervanck presents observations on 2 families in which clinodactyly was hereditary. There was lateral deviation in a radial direction of the little fingers and in some members of the first and other fingers as well. The deviation is the result of slanting of the articular surfaces of the mesophalanges; at the same time the phalanges are shorter than normal (brachyphalangy). In one of the two family groups 65 of 124 members showed the anomaly, and in the second family group 28 of 43 showed it. The anomaly is

irregularly dominant and the possibility is considered that more than one gene with identical effect may cause the anomaly. In a third family camptodactylia and clinodactyly were evident.

Metastases of Mammary Carcinoma Following Treatment with Testosterone Propionate.—Pelser and his associates present observations on 6 patients with metastases from mammary carcinoma who were treated with large doses of testosterone propionate. In 4 cases the treatment was combined with surgical or roentgenologic castration. In one case remarkable improvement was observed. The 5 remaining patients died within half a year after treatment. Undesirable secondary effects in 3 cases necessitated discontinuation of treatment with testosterone propionate. In 2 patients the excretion of estrogenic substances increased under the influence of the treatment; in 2 others a decrease was observed. The total excretion of 17-ketosteroids increased as a result of the treatment. Of the testosterone propionate given about 40 per cent was found in the urine.

Nordisk Medicin, Stockholm

40:1857-1912 (Oct. 15) 1948

Hypertension in Pregnancy. Clinical Picture, Prognosis and Therapy. L. Werkö.—p. 1857.
*Menstruation in Thyrotoxicosis. O. Riisfeldt.—p. 1864.
Circulation in Pregnancy. L. Werkö, H. Bucht, H. Lagerlöf and A. Holmgren.—p. 1868.
Legally Induced Abortion. Methods and Complications in Women's Clinic, Sahlgrenska Sjukhus, 1942-1947. N. Svanberb.—p. 1870.
Fothergill's Operation for Prolapse of Uterus. A. H. I. Jakobsen.—p. 1874.
Formation of Postoperative Adhesions on Peritoneal Application of Chemotherapy. P. Bergman and K. Bergquist.—p. 1877.
Fetal and Neonatal Mortality and Birth Weight of Children Born to Prediabetic Mothers. Olga Imerslund.—p. 1880.
Determination of Basal Body Temperature as Aid in Insemination. B. von Friesen.—p. 1882.
Induced Labor by Means of Bougie and Puncture of Amniotic Sac. K. M. Andersen.—p. 1884.
Ruptured Ovarian Pregnancy after Earlier Salpingectomy on Same Side. O. Riisfeldt.—p. 1885.
Interstitial Pregnancy. K. Kulseng-Hansen.—p. 1887.
Prolapse of Female Urethra. G. Ahltorp.—p. 1889.

Menstruation in Thyrotoxicosis.—Riisfeldt found menstrual disturbances in 28.8 per cent of 340 sexually mature women with goiter. Only 3 out of 31 patients with nontoxic goiter had menstrual anomalies. Hypomenorrhea occurred in 44 of 87 patients with thyrotoxicosis, oligomenorrhea in 27 and amenorrhea in 16. Anomalies in menstruation are often an early sign of thyrotoxicosis and were more frequent in women over 30; in 2 cases hypomenorrhea was the first symptom. The increased thyroid activity in hyperthyroidism exerts an inhibitory effect, directly or indirectly, on the gonads. Some patients with irregular menstruation before the onset of thyrotoxicosis became regular during the thyrotoxicosis and continued regular after operative treatment and disappearance of the thyrotoxic symptoms.

40:1913-1968 (Oct. 22) 1948. **Partial Index**

*General Adaptation Syndrome and Diseases of Adaptation. H. Selve.—p. 1913.
Erysipeloids, Especially in Handlers of Fish. S. Lundgerg.—p. 1924.
Seasonal Variations in Impetigo Contagiosa. E. Sylvest.—p. 1926.
Stevens-Johnson Syndrome (Ectodermosis Erosiva Pluriorificialis). J. Ström.—p. 1929.
Sodium Penicillin in Gonorrhea. D. Pedersen.—p. 1934.
Histamine Infusion in Chronic Urticaria. M. Bohman.—p. 1939.
Wassermann Reaction Carried Out by Different Methods. P. Krag and T. M. Vogelsang.—p. 1940.

General Adaptation Syndrome and Diseases of Adaptation.—A description and theoretic interpretation of the general adaptation syndrome are given. It is defined as the sum of all the nonspecific reactions which follow long-continued exposure to stress and is characterized by morphologic and functional changes, the most important being enlargement of the adrenal cortex with increased secretion of corticoid hormones, thymus involution and various changes in metabolism and resistance. It appears in three stages: (1) the alarm reaction, the sum of all nonspecific reactions produced by sudden exposure to stimuli to which the organism is not quantitatively or qualitatively adapted; (2) the resistance stage, the sum of all the nonspecific reactions produced by long-continued exposure to stimuli to which the organism has become adapted, and (3) the stage of exhaustion, the sum of all the nonspecific stimuli to which adaptation has been acquired which can no longer be maintained. Selve states that if the conception of diseases of adaptation proves to be correct the conclusion must be that endocrine disturbances play a large part in internal medicine. Some of the commonest diseases in man seem to be related to failure of the mechanism of adaptation. Recent investigations indicate that diseases such as hypertension, nephrosclerosis and "rheumatic disorders" may appear as by-products of the endocrine reaction in the general adaptation syndrome. Diseases of hypertension, periarteritis nodosa, nephritis, the Waterhouse-Friderichsen syndrome, eclampsia, appendicitis, acute tonsillitis, Cushing's syndrome, secondary shock, gastrointestinal ulcerations, Addison's and Simmond's diseases and primary renal disorders are among the disorders assumed to be disease of adaptation.

Revista de Sociedad de Ped. del Litoral, Rosario

13:3-38 (Jan.-April) 1948. **Partial Index**

*Acute Poisoning and Cardiac Disturbances Caused by Scorpion's Bite. J. Celoria and M. Sloer.—p. 3.

Acute Poisoning and Cardiac Disorders from Scorpion's Bite.—Bothriurus vittatus is the common type of scorpion in the littoral zones of Argentina. The bite of this type of scorpion causes subacute or acute symptoms in adults, and acute symptoms and often a fatal outcome in children. Adults exhibit severe headache, dizziness, nausea, numbness of the extremities and of the tongue. The symptoms subside as a rule in the course of the same day without any treatment. The author reports a girl 6 years of age bitten by a scorpion. She was brought to the hospital four hours later complaining of dizziness, numbness of the tongue and of the extremities, nausea, vomiting and headache. She had moderate dyspnea and cyanosis. Electrocardiographs demonstrated tachycardia, a nodal rhythm and bigeminal and trigeminal extrasystoles. The patient became unconscious with general convulsions, trismus, leftward deviation of the eyes, rhythmic spasms of the arms and frequent vomiting. The treatment consisted of administration of antiophidic serum, nikethamide, oxygen, dextrose solution and an enema containing 1 Gm. of chloral hydrate. The patient recovered. The author directs attention to this type of scorpion venom as a brain and myocardium excitant.

Semaine des Hôpitaux de Paris

24:2891-2920 (Nov. 30) 1948

Psychoses of Postpartum; Cytohormonal Study. J. Delay, G. Boittelle and A. Cortecl.—p. 2891.
*Efficacy of Vaccination with BCG in Nurses of Saint Joseph Hospital; Criticism of Abusive Indications. J. Génévrier and A. C. Macloufl.—p. 2901.
Neuropsychopathic Abdominal Perivisceritis. R. Benon.—p. 2905.

BCG Vaccination of Nurses.—Génévrier and Macloufl studied 77 student nurses at the Saint Joseph Hospital in Paris during the period 1934 to 1942. Thirty-one of them continued to have negative reactions and left the nurses school before the appearance of the cutaneous allergy. The reactions of the remaining 46 turned positive; in 13 (17 per cent) this turning was associated with an incident of tuberculous type. Two (2.6 per cent) student nurses had tuberculosis, 1 of them Pott's disease and 1 tuberculous osteoarthritis. Eight (10.4 per cent) student nurses presented benign manifestations. There was an intermediary group of 3 (3.8 per cent) with serofibrinous pleurisy. In contrast to that the tuberculous morbidity was zero in 55 student nurses who were vaccinated with BCG by cutaneous scarification during the period 1943 to 1947. Thus the BCG vaccination prevented all simultaneous or secondary incidents of the turning and made it possible for the nurses who had no reaction to serve prolonged terms in the tuberculous wards. Comparison of these two groups of anergic student nurses at the same hospital proves the efficacy of the BCG vaccination. The subcutaneous injection of BCG may, however, awake a latent lesion in a definitely allergic person. Any allergic person should therefore be strictly excluded from vaccination. The systematic vaccination of the entire anergic population of France is not feasible, but in the well known centers of the disease in certain counties and towns all persons should be vaccinated after birth whether or not they are the offspring of a family of tuberculous persons.

Book Notices

Polio and Its Problems. By Roland H. Berg. With a foreword by Basil O'Connor, President, the National Foundation for Infantile Paralysis, Inc. Cloth. Price, $3. Pp. 174, with 24 illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1948.

The author, a professional writer not of the medical profession, has undertaken to write a biography of the disease. In this task he has succeeded with a measure of scientific and historical accuracy which reflects due attention to source material. The opening chapter describes the epidemic of 1916 from the point of view of the bewildered layman in those troubled times. If contemporary newspaper accounts, which are freely quoted, offer a true picture of the public's concept of poliomyelitis a generation ago, then indeed we have come a long way on the road to understanding, and it is highly appropriate that the landmarks be listed and the direction of future progress mapped.

Succeeding chapters deal with early investigators, from Heine, Medin and Wickman up to Landsteiner, Kling and Flexner; with the experimental transmission of poliomyelitis to laboratory animals; with successive attempts to check the disease by nasal spray or prophylactic inoculation of attenuated virus material. The author goes on to describe the search for an effective chemotherapeutic agent and the methods used by epidemiologists in their efforts to explain the mode of transmission. Some of the newer tools of research are mentioned, as well as recent progress in the treatment of bulbar poliomyelitis and in applications of physical therapy. A number of the more controversial hypotheses still under active investigation are sketched in broad lines. The contribution of Sister Kenny is judiciously and fairly evaluated. One chapter is devoted to the case history of F. D. Roosevelt, another to the story of the National Foundation for Infantile Paralysis, how it arose and what it strives to accomplish. On the whole, a summary of what is known of poliomyelitis is set forth with reasonably balanced emphasis and in language readily understandable to a layman. If at times the author has let his zeal for simplification carry him close to the limit of factual terrain, there is ample justification in the complexity of the true picture.

The book is aimed primarily at nonmedical readers. Indeed, the physician may well blush at seeing himself placed on so lofty a pedestal, repeatedly characterized as a fearless fighter of disease, a detective in white. Recurrent refereyce to poliomyelitis as "the Crippler" becomes as tiresome as does the overworked metaphor of militancy in the domain of scientific research, the compelling urge of which is actually closer to that of book collecting than to shooting war. Is it really necessary, one cannot help asking, for the public to have its science prose flavored with such overpowering condiments as modern journalese has brought into all too common use? Fortunately, the final chapter on "The Sum of Our Knowledge," the best in the whole volume, is expressed in moderate terms which go far to dispel the pungent after-taste of the main course. On the whole, in spite of a number of typographic mishaps and egregious grammatical errors, the volume can be recommended as a readable and substantially accurate account of the effort, still largely unrealized, to probe the mysteries of a disease which, if not so common as many others in its overt forms, nevertheless remains indisputably a subject of wide public concern.

In a foreword written by Basil O'Connor, president of the National Foundation for Infantile Paralysis, credit is properly assigned to the American public for its generous contributions, made over a period of years, which have not only helped vastly to carry the burden of medical care of poliomyelitis patients but, what is even more perspicacious, have rendered possible an intensive research program in a field of notable difficulty.

Advances in Pediatrics. Volume III. Editorial Board: S. Z. Levine, Allan M. Butler, L. Emmett Holt Jr. and A. Ashley Weech. Cloth. Price, $7.50. Pp. 363, with illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1948.

This volume by eight writers consists of personalized monographs; each one deals with advances in a particular field in which the author has had considerable experience and achieved recognition for outstanding work. The various subjects include: "The Effects of Birth Processes and Obstetric Procedures upon the Newborn Infant," by Clement A. Smith, Boston; "Retrolental Fibroplasia," by T. L. Terry, Boston; "Emotions and Symptoms in Pediatric Practice," by Milton J. E. Senn, New York; "Therapeutic Agents in the Treatment of Epileptiform Seizures," by William G. Lennox, Boston; "Viral Hepatitis," by Joseph Stokes Jr., Philadelphia; "Abnormalities and Variations of Sexual Development During Childhood and Adolescence," by Lawson Wilkins, Baltimore; "Puberty and Adolescence; Psychologic Considerations," by Hilde Bruch, New York, and "The Osteochondroses," by Beckett Howorth of New York. Just as in the first two volumes the third is outstanding in variety and authenticity of subjects covered.

Each subject is presented in a simple, complete and elucidating manner. The subject of adolescence, which is always a problem to every physician, is admirably considered and very timely. In "Viral Hepatitis" the value of diet and hepatic function tests together with other pertinent information is clearly and accurately presented. The reproductions of roentgenograms in the various ostrochondroses are good. Each subject is brought up to date in a thorough and interesting manner.

The printing, paper and construction of the book are excellent. Books such as this should be in the library of every physician who wants to keep abreast with the latest and the best in medicine.

Health Education: A Guide for Teachers and a Text for Teacher Education. Edited by Charles C. Wilson, M.D., Professor of Education and Public Health, Yale University, New Haven, Connecticut. Revision Committee: Thurman B. Rice, M.D., Bernice Moss, Ed.D., W. W. Bauer, M.D. Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association with the cooperation of contributors and consultants. Fourth edition. Cloth Price, $3. Pp. 413, with illustrations. National Education Association of the United States, 1201 16th St., N.W., Washington 6, D. C., 1948.

This book is representative of medical and educational thinking on the subject of health education. The committee of five members from each profession, appointed by their national organizations, has brought together accurate scientific information and sound pedagogic principles.

The 1948 version of this guidebook on health education is actually a completely rewritten fourth edition of the reports which appeared in 1924, 1930 and 1941. In addition to the planning and work of the Joint Committee, over a hundred contributors and consultants drawn from the professions of education and medicine and from the field of public health participated in the development of the manuscript. Dr. Charles C. Wilson, editor of the book, directed the project with the aid of a revision committee.

The book offers the best present day point of view concerning the philosophy, methods and content of health education. The nation's health needs are defined, especially as they relate to children, and emphasis is placed on community cooperation as a means of solving these problems. Methods of making the health services furnished by physicians and nurses worthwhile educational experiences and of improving the health behavior of children through healthful living at school are discussed at length. Detailed suggestions are made in respect to the organization and administration of health education in the elementary and secondary schools, and for college and adult groups. Ways of using motion pictures, film strips, exhibits, radio and other audio-visual aids to vitalize health teaching are described and methods of locating appropriate and authentic resources discussed. Methods of measuring results obtained and progress made are suggested and a number of reports of learning experiences in health at the various grade levels are outlined.

The editor and the revision committee have succeeded in combining a worth while factual presentation with an interesting style. It is easy and pleasant to read and the photographs are excellent. Tables, charts and other illustrative material further encourage the reader.

While the book will be of greatest value as a guide for teachers in service and a text for teacher education, it should be required reading for school physicians, administrators and nurses. It is highly recommended to any physician who wishes to acquaint himself with modern health education practices, and as a valuable edition to the library of the thousands of physicians who act as personal medical adviser to school children and their families.

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Drug Research and Development. Edited by Austin Smith, Secretary, Council on Pharmacy and Chemistry, American Medical Association, Chicago, and Arthur D. Herrick. Cloth. Price, $10. Pp. 596. Revere Publishing Co., 15 Trinity Place, New York 6, 1948.

Each of the authors provides at least one chapter dealing with that phase of the general topic which, through actual experience, he is eminently prepared to present. The thorough scope of the work can best be presented through the chapter headings which follow:

The Modern Drug Formula	Drug Trade-marks and Labels
Chemistry of the Formula	Drug Regulation
Pharmacology of the Formula	New Drug Applications
Laboratory Research	Biologic Control Regulations
Development of Biologicals	Drug Certification
Clinical Testing	Council Acceptance
Development of Facilities and Controls	Product Development, Promotion and Marketing
Labels and Labeling	Advertising
Packaging and Storage	"Detailing" the Physician
The Product and the Patent Law	Professional Acceptance
	Retail Price Maintenance

As the chapter heads indicate, every possible phase of the subject has been covered, making the book the first of its kind, and one to be considered by the drug manufacturer and distributor, the research and laboratory worker, the physician and pharmacist, the advertising counsel and sales representative, each of whom, as the editors point out, is a participant in the development of drugs and drug therapy. This compilation is an outstanding contribution to the drug industry, well written and comprehensive in its scope.

The book is not just one for a manufacturer's library; it should be in the hands of at least each department head who has any part in the development of new drugs, and preferably available to others in the department, that each may understand how his contribution is integrated with the whole. It cannot help but be valuable even for the well established manufacturer who has already developed many new drugs, and it will, undoubtedly, save many dollars, hours and setbacks for the one who is just embarking on such a program. If this volume had been available several years ago, a number of most unfortunate "accidents" would, undoubtedly, never have occurred, and following its pattern today will certainly prevent many additional "mistakes." In addition, the book should be used by every pharmacy college now giving specialized instruction in manufacturing, for these are the men who will go into industry and take an important part in many phases of drug research and development.

Vers la médecine sociale. Par René Sand, professeur de médecine sociale à l'Université de Bruxelles, Brussels. Paper. Pp. 671. J. B. Baillière et fils, 19 Rue Hautefeuille, Paris, 6e; Desoer, 21 Rue Sainte-Véronique, Liège, 1948.

Dr. Sand presents in this volume a cyclopedic review of developments which reflect the recognition of social factors in health and disease. Well documented sections deal separately, on a worldwide basis, with the growth of medicine as a profession, the history of hospitals, individual hygiene and social (public) hygiene, industrial medicine, public welfare and various branches of the social sciences in relation to medicine and health. A final section discusses the coming of social medicine and presents an integration and evaluation of the full range of scientific and cultural developments which are making this concept the basis of medical practice for the future. Dr. Sand sees the true scope of social medicine as encompassing the concept of health for all, including preventive, therapeutic and reparative care, and using the combined resources of physicians, sanitarians and other professional groups in medicine, biostatisticians, psychologists, welfare workers and sociologists.

The author accepts the democratic concept of the individual, to be considered in a social context. Rather summary reference is made to developments in compulsory health insurance. The author, however, grapples with the problems of economics in medical practice on philosophic and medical grounds and concludes that group practice and compulsory insurance with capitation payments are the functional solutions.

The volume includes a five page table of contents, a six page general bibliography, a twenty-nine page index of names and a well organized twenty-five page subject index, as well as numerous footnote references to pertinent facts in the text.

Handbook of Orthopaedic Surgery. By Alfred Rives Shands, Jr., B.A., M.D., Medical Director of the Alfred I. duPont Institute of the Nemours Foundation, Wilmington, Del. In collaboration with Richard Beverly Raney, B.A., M.D., Associate in Orthopaedic Surgery, Duke University School of Medicine, Durham, N. C. Third editon. Cloth. Price, $6. Pp. 574, with 159 illustrations by Jack Bonacker Wilson. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1948.

The author in the preface to the first edition made the following statement, "The fundamental facts and principles of orthopedic surgery are presented as concisely as possible and in sufficient detail to convey a well rounded knowledge of the subject."

This is definitely true for the third edition which contains twenty-four chapters and a most excellent bibliography.

The line drawings and roentgen photographs are adequate and descriptive.

This edition did not contain a description of cohesive-adhesive bandaging for clubfoot. It failed to mention the Frejkas pillow splint for treatment of congenital hip dislocation in infants. It did not indicate the diagnostic lines on the roentgenogram for determining these congenital hip dislocations. Polyostotic fibrous dysplasia was not discussed, and it should have been described under "Affections of Adult Bone." More emphasis would have been valuable on the physical therapeutic technic of muscle training and stretching in "Anterior Poliomyelitis."

This is still the best American handbook of the specialty available for students and general practitioners. It is well written, well presented and highly recommended.

Plaster of Paris Technic. By Edwin O. Geckeler, M.D., Professor of Orthopaedic Surgery, and Chief of the Fracture Service, Hahnemann Medical College and Hospital, Philadelphia. Second edition. Cloth. Price, $3. Pp. 220, with 236 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves, Baltimore 2, 1948.

In preparing this edition the author has incorporated suggestions offered by orthopedic and traumatic surgeons. Many illustrations have been added which enhance the value of this book.

The author is a devotee of plaster of paris. He believes in individualization of the patient.

A large proportion of orthopedic conditions must be immobilized with plaster. The inadequacy of wood or metal splints for injuries except emergencies is mentioned. Plaster technic is by no means standardized, and application of a splint or cast should be adapted to the individual; thus there is opportunity for originality and improvement in technic.

Curriculums for medical students provide little instruction in this plaster of paris technic. The beginner often must learn through his own resources. In many instances the surgeon himself does not apply the plaster to his patients, but assigns this part of the treatment to the intern. There appears to be a popular idea that the application of plaster means just so much labor, and that it requires time which could be spent otherwise to greater advantage.

Orthopedic technic and the reduction of fractures have been intentionally omitted from this book. To learn plaster technic the reader not only is advised to follow the instructions carefully, but also should practice extensively on actual patients.

The material covered includes general technic in the application of plaster of paris. Errors and difficulties are enumerated. The author discusses and illustrates the technic as applied to various parts of the body, such as the spine, shoulder, upper limb, pelvis and lower limb. He also discusses the use of plaster of paris in war surgery, compound fractures, osteomyelitis, injury and inflammation of soft tissues and in the care of burns.

Diabetic Manual for the Doctor and Patient. By Elliott P. Joslin, M.D., Sc.D., Medical Director, George F. Baker Clinic at New England Deaconess Hospital, Boston. Eighth edition. Cloth. Price, $2.50. Pp. 269, with 51 illustrations. Lea & Febiger, 600 S. Washington Square, Philadelphia 6, 1948.

This manual, now in its eighth edition is no doubt the leader in its field, representing as it does the writings, the views and the experiences of one of America's greatest investigators and practitioners in this field. The presentation is simple and accurate and possesses the necessary journalistic qualities to make it intensely readable. Among a dozen or more books available in the field, this one may be recommended without reservation.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

AIR POLLUTION IN DONORA

To the Editor:—***Life*** **magazine, Nov. 15, 1948, states "Death Over Donora . . . Doctors went into action, one of them rushing down a street giving adrenalin injections to choking citizens who came out of their homes through the smog, pleading to be next. Within 48 hours, 19 people were dead, more than 400 sick." What is the most helpful treatment for persons acutely ill because of air pollution? Here in Los Angeles our main problem used to be water, but, as you may have heard, recently we have had some trouble with air.**

Clarence W. Olsen, M.D., Beverly Hills, Calif.

ANSWER.—Much speculation has entered the appraisals of happenings at Donora. At the time of the preparation of this reply, no official report is known to have been made. On this account some conjecture may influence this reply. It appears likely that the Donora disaster foremostly resulted from the coexistence of a number of meteorologic conditions that might have been anticipated as of possible occurrence and in the possible absence of any unusual happenings at the metal plant, widely condemned. The simultaneous occurrence of a dense fog, limited air movement, the absence of upward movement of atmospheres, peculiar air temperature situations, together with the presence, in these low-hanging, little moving clouds, of the usual output of factory gases, possibly may fully account for the ensuing events. To a lesser degree, these fortuitous meteorologic situations take place every year in many industrial cities and particularly where the terrain is characterized by high hills. It may be assumed that mass hysteria pervaded the population and that the total number of genuine cases is somewhat lower than reported. It may be assumed that both sulfur dioxide and trioxide were present. These irritant gases in the absence of water droplets ordinarily do not penetrate deep into the respiratory tract. When water droplets are present and the mentioned irritant gases enter the droplets, they then may be expected more readily to enter the lungs and to induce deeper seated injury. To some extent, pulmonary edema may arise. Further, with or without pulmonary edema, some bronchial spasm may occur. The resulting symptom complex may be similar. For persons with asthma on an allergic basis, it does not necessarily follow that the mentioned irritants would induce asthmatic attacks. On the other hand, it may not be necessary to assume preexisting allergic asthma as essential to spasmodic muscular contractions. In any event, the prevailing state of panic heightened the evil occurrences. In the case of aged persons with presumed imperfect cardiovascular systems, pulmonary edema in particular may be regarded as likely to have imposed increased cardiac burdens. If perfect therapeutic facilities might have existed, the use of oxygen under pressure, associated with complete rest, probably would have afforded the best treatment. Ephedrine and epinephrine administered either subcutaneously or through inhalation undoubtedly were of value both psychologically and factually notably for those in whom muscular spasms along the respiratory tract occurred. Other bronchodilators, such as aminophylline, would have proved serviceable, especially in the early involvement stages. Since aminophylline is best introduced intravenously its use is obviously circumscribed in mass emergencies. If any such catastrophe might have been anticipated, possibly the best single drug for self administration would be epinephrine administered by hand atomizers. Definitely it is not intimated that any such self medication would be universally efficacious. This query specifically seeks "the most helpful treatment for persons acutely ill because of air pollution." Manifestly, any proper answer starts with "air pollution by what?" Until reply may be provided, the best single step is the provision of oxygen and the avoidance of exertion.

VISUAL ILLUMINATION

To the Editor:—**Please give information on the optimum illumination for maximum visual efficiency.** **Morton Arnold, M.D., Willimantic, Conn.**

ANSWER.—Optimum illumination for maximum visual efficiency is actually difficult to determine. In general it depends on a number of variables, including: 1. The illumination itself: the source varies, such as sunlight, electricity, gas light (now neon, etc.), kerosene and fireside light, and is measured and rated in "foot-candle." 2. The object viewed: this depends on (*a*) form: the letters T, L and O are easy to read in comparison with Z, G and N; form is determined better by black or white than it is by any color contrast; (*b*) color: red is seen farther than green; yellow "contrasts" better with blue than it does with red; "continental" red gives a marvelous stereoscopic effect when crossed by narrow black lines; etc.; (*c*) dimension: three-dimensional objects develop greater visual efficiency than do two dimensional "flat" objects. 3. The eye itself as the receiving apparatus. You cannot get a good picture with a poor, insensitive film and you cannot get perfect visibility with an imperfect retina. The media of the eye must transmit light correctly: it must be clear and it must be uniform, not varying in density here and there, as in the cornea, lens and vitreous humor; fine closely placed opacities interfere most, and disseminated diffuse minute opacities make more trouble than do larger ones, e. g., a millimeter-sized posterior polar cataract. 4. The psychology of vision, about which we know so little, may well be a factor influencing efficiency, especially when illumination varies.

On the practical side, probably nineteen twentieths of our distress comes from what happens when we look at objects within 2 feet (61 cm.) of our eyes rather than what happens when we look at objects at a greater distance (as 3 feet [91.4 cm.] or 20 feet [6.1 meters] or 100 feet [30.5 meters]). Near vision makes much greater demands. One who has two-thirds vision for distance objects seldom wishes or needs glasses, although they improve vision by three or four lines. For groups working in library, office and schoolroom, the writer holds that uniform, but rather weak, light, which just enables one to miss waste baskets, spittoons, etc., is enough, along with a good, goose neck, $3 desk light and 100 to 150 watt bulbs.

Indirect, reflected lighting requires too much current, generates too much heat and is unnecessary. In general, it seems to be on the way out. For room and space lighting the type secured by multiple reflectors about each small unit may meet great acceptance in the immediate future

GENETIC ASPECTS OF SCHIZOPHRENIA

To the Editor:—**Is dementia precox inherited? A patient has a half-sister in whom dementia precox, catatonic type, developed at age 16. They had the same father and their mothers were twin sisters, but it is not known whether they were identical or fraternal twins. The patient is anxious to have children, but is hesitant. Assuming that the husband's family history is negative and that the half-sister's case is the only one in the wife's family, is it advisable for this couple to have children? What are the chances of the offspring's developing insanity or other nervous system disease as compared to parents with "normal" backgrounds? Does it make any difference if the mothers were fraternal or identical twins?**

M.D., Washington, D. C.

ANSWER.—The genetic aspects of schizophrenia (dementia praecox) are controversial. What evidence has been advanced may be summarized by the following:

There is no inheritance of fully developed characters or anomalies but only a transmission of predispositions, i. e., specific potential responses to the environment (Gates, R. R.: Human Genetics, New York, the Macmillan Company., 1946). Statistical data have been presented which indicate that schizophrenia (dementia praecox) occurs more frequently in families which include a known case of schizophrenia than it does in the general population (Kallman, F. J.: The Genetic Theory of Schizophrenia, *Am. J. Psychiat.* **103**:3, 1946). The average expectancy of schizophrenia in the general population is 0.85 per cent. Children of one schizophrenic parent have a 16.4 per cent probability of getting the disease; the grandchildren 4.3 per cent and the nieces and nephews 3.9 per cent. The schizophrenic rate of parents of schizophrenic persons approximates 10 per cent. The expectancy for brothers and sisters as well as for the fraternal twin partners of schizophrenic persons is around 14 per cent; for half-siblings it is 7.6 per cent and for step-siblings 1.8 per cent. The identical twin partners of schizophrenic persons show an expectancy rate of 85.8 per cent (Kallman, F. J.: Modern Concepts of Genetics in Relation to Mental Health and Abnormal Personality Development. *Psychiatric Quart.* **21**:535-553 [Oct.] 1947).

The clinical expression of the disease in these "carriers" requires, in addition, the provocative influence of all those life situations generally recognized to be psychopathologically conducive to the development of schizophrenia. Evidence that the genetic predisposition to schizophrenia bears any relation to other psychoses or "nervous system disease" is lacking.

Eugenic advice in instances such as this should be given not only in the light of these genetic findings but also with complete assessment of, and full consideration for, the many other personal factors which uniquely characterize the inquirer.

CHRONIC BRUCELLOSIS

To the Editor:—A 34 year old white female patient, para I, is now two and one-half to three months pregnant. Beginning about fourteen years ago fever developed of unknown origin. Four years ago a diagnosis of undulant fever was made, at which time her doctor treated her with undulant fever vaccine. She was told after this treatment that she was cured. However, she has had recurrent fever up until six months ago. Since that time she states that she has not had recurrence of the fever. Does vaccine cure the disease? What is the accepted method of treatment in this case? Is aureomycin indicated?

Matthew A. Mroz, M.D., Deland, Fla.

ANSWER.—With respect to expectations from therapy, to latency of infection and the likelihood of relapses or recovery, brucellosis is much like tuberculosis. Fewer false hopes of "cures" would be aroused if those who treat patients with brucellosis would adopt the point of view now widely held concerning therapy in tuberculosis. Various agents or regimens may induce remissions of variable lengths in many patients. Single agents or modes of therapy for chronic brucellosis that are successful with all patients are not known. Aureomycin is effective in inducing impressive remissions in acute brucellosis; whether or not these remissions will persist for three or five years, with or without transitory or prolonged relapses, is not yet known. It is unlikely that a fair appraisal of its value in chronic brucellosis can be made in less than five years. Although the currently observed toxic reactions from aureomycin are inconsiderable one cannot foretell from the present small experience what the future may bring after the antibiotic is widely used. If study of the patient should disclose active chronic brucellosis, some form of treatment is advisable. An informative paper with important bearings for this patient is "Undulant Fever in Children," by Hagebusch and Frei *(Am. J. Clin. Path.*, **11**:497-515 (June) 1941).

TREATMENT OF BRUCELLOSIS

To the Editor:—A woman aged 56 has had 4 children, an appendectomy and a hysterectomy. She now complains of considerable abdominal distress and pain in the right upper quadrant, arthritis in various joints, particularly in the hands, numbness, insomnia, headache, and chills and sweats with dryness of the skin. Her blood pressure and urine are within normal range. A roentgenogram of the gallbladder is negative. This patient was given an intradermal test for undulant fever which elicited a positive reaction. Result of an agglutination test of the blood was negative. Should this patient be treated for undulant fever? What is the standard treatment for undulant fever?

J. L. Snavely, M.D., Sterling, Illinois.

ANSWER.—In the foregoing statement reference is not made to whether the patient has had fever. The clinical findings are only suggestive of brucellosis and the diagnosis in this case is not established on the basis of a positive reaction to an intradermal test. Since conclusive evidence for active brucellosis is lacking, the patient should not be given specific antibrucella therapy.

It has now been established by several investigators that a combination of streptomycin and sulfadiazine is an effective form of therapy in proved brucellosis. The dose of streptomycin is 0.5 Gm. intramuscularly every eight hours for two weeks. At the same time that streptomycin is started, 3 to 4 Gm. of sulfadiazine is administered orally, and then 1 Gm. every four hours for the same period. Therapy with both drugs is then discontinued. Because streptomycin may induce toxic reactions, especially vestibular dysfunction, dihydrostreptomycin is preferred. Dihydrostreptomycin is just as active against Brucella as is streptomycin. Recent clinical studies reveal that aureomycin is effective in acute brucellosis. The antibiotic has been administered orally in doses of 0.5 Gm. every six hours for ten days to two weeks. Definite dosage schedules remain to be worked out.

PAPAVERINE IN CORONARY DISEASE

To the Editor:—Papaverine has been advocated by some cardiologists in the treatment of acute myocardial infarction with the idea of producing vasodilatation of the coronary arteries and promoting the development of collateral circulation within the coronary artery system. Can nitrates be used for this purpose in myocardial infarction?

Ernest B. Williams, M.D., Salt Lake City.

ANSWER.—Papaverine acts directly on smooth muscle, causing relaxation, and has been used predominantly for the treatment of spasm of the bile ducts and of the gastrointestinal tract, occasionally also in bronchial asthma and in recent years in coronary heart disease. Conclusive evidence is lacking that it acts by sedative effect on the central nervous system. Unfortunately, it is not infrequently disappointing in the treatment both of acute myocardial infarction and of recurrent angina pectoris. Its effect is more prolonged than that of glyceryl trinitrate but erythrol tetranitrate has in many cases a more favorable effect, which last for several hours.

FAMILIAL PERIODIC PAIN

To the Editor:—A family gives the history of periodic pain in the extremities traced back through five successive generations on the mother's side. Thirteen were females and three males. The trouble starts in early childhood—in infancy in 1 known case—and continues throughout life. Discomfort in one or all extremities occurs in series of eight to twenty spells lasting a few minutes to one hour over a period of one to two days. These sessions may be a few days or a few weeks apart, becoming less frequent as the patient grows older. Exciting cause is unknown. They occur at rest or during activity, day or night, and during all seasons. Pains consist of an aching discomfort, greatest about the knees or elbows but involving the muscles, toes and fingers. The patient can usually go about his duties but at times, especially if one of the younger children, he cries with the pain. Acetylsalicylic acid and massage give the greatest relief; quinine, sedatives, antihistaminics, iodides, methacholine, calcium and glyceryl trinitrate did not help. All routine laboratory work has been normal. Roentgenograms of the extremities in 1 patient were normal. Her electroencephalogram showed mild cerebral dysrhythmia. Suggestions will be appreciated.

F. R. Janney, M.D., Wauwatosa, Wis.

ANSWER.—Known neuropsychiatric entities do not correspond to the condition described. Myalgia and muscular rheumatism are not considered either hereditary or familial. The painful extremities seem to have been a familial affair.

ULCUS VULVAE ACUTUM

To the Editor:—A 20 year old patient has suffered for four years from recurrent attacks of erosive lesions appearing simultaneously on the mucosa of the mouth, lips, vagina and external genitalia often accompanied by fever and joint aches. At two large medical centers she was told that the condition was a type of erythema multiforme. She has had a complete allergic work-up without strikingly positive results. She has avoided all cosmetics and powders and except for treatment given during attacks has not taken drugs. She has had a trial on nonallergic diets, sulfadiazine, penicillin, multiple vaccination with smallpox vaccine and antihistamine drugs, all to no avail. Secondary invaders were cleared by the antibacterials. Her present attack has lasted two months without signs of regression. She has been treated with sulfadiazine, salicylates and alkali, and a course of diethylstilbestrol therapy. Please suggest further treatment. Will neoarsphenamine be of benefit?

M.D., Maryland.

ANSWER.—The description and clinical course of this case suggest in addition to erythema multiforme the disease "ulcus vulvae acutum," which is thought to be due to Bacillus crassus, a saprophyte of the genital tract. Sometimes the lesions respond to treatment with hygienic measures, but the disease is prone to recur. A thorough search should be made for a focus of infection which could conceivably furnish the source for an erythema multiforme reaction. And, since all orthodox methods of treatment have failed to give relief in this case, it might be well to try therapy with a preparation of arsenoxide intravenously, 0.04 Gm. every five days, although arsenicals have been used in other cases without much success. The administration of vitamin B and liver extract and—more important—psychotherapy are measures that give most promise of success in cases of ulcus vulvae acutum.

CHEMICALLY PRODUCED SOFT WATER

To the Editor:—Is there a hazard involved in drinking chemically produced soft water? Are there any advantages in drinking hard water? If one drinks soft water, is it necessary to add chemical or salt in tablet or liquid form to prevent harmful effects on the body chemistry?

S. Albert Molle, M.D., Los Angeles.

ANSWER.—The body's need for minerals is largely met through foods, not through drinking water. A fair portion of the earth's population regularly depends on rain water for drinking purposes. In other areas, such as portions of Michigan, potable waters are rich in sodium chloride. In other communities the drinking water supply is chemically softened. In none of these situations is it well established that the health of consumers is modified. It may not be inferred that all mineral constituency of water is without health significance. In a few localities, nitrites in ground waters may lead to methemoglobinemia, notably in infants. Some water supplies contain a helpful content of iodine which should not be removed by any water treatment. Some drinking water sources provide a suitable level of fluorine which aids in the prevention of decayed teeth. Slightly higher amounts of fluorides may prove detrimental and lead to impairment such as "mottled enamel." To meet the need for fluorine intake, some communities commendably are adding judicious quantities of fluorine salts to water supplies as a step in dental hygiene. Newcomers to many communities readily are upset by quick change to new types of drinking water, and such affections as diarrhea are common, particularly if magnesium compounds are present. An old belief is that hard waters favor the occurrence of lithiasis,

but little support for this idea may be established. While denying any great significance for minerals in waters in human economy, it is recognized that at least some minerals, such as calcium, are metabolized with benefit. In general, the advent of any proper water-softening procedure may not be expected to call for special readjustment so far as health is concerned.

COLD HYPERERGY

To the Editor:—A 16 year old patient breaks out with typical "hives" all over her body after exposure to cold or after strenuous muscular exertion. This is accompanied by severe itching, but not other symptoms. Composition of her clothing does not affect this. She gets relief from antihistaminic therapy. Would you advise skin testing for allergic sensitiveness? What would most likely cause this condition?

Philip L. Blumenthal, M.D., Mandan, N. D.

ANSWER.—The syndrome described is a thermal hypersensitivity. In some cases the stimulus is cold; in others heat, and in still others both heat and cold will produce the response. The best evidence available indicates that this is not an allergic reaction (antigen reacting with antibody) but that it is most likely due to a mechanism whereby histamine is readily released from the cells by the stimulation from moderate degrees of cold and heat. Intense cold and heat stimulation will normally release excess histamine. In the abnormal cases, such as the one described, the same result is produced by a lesser stimulus. This should be regarded not as allergy but rather as hyperergy (exaggerated normal response).

Of course, in such a primary response, tests with foods, clothing or other allergens would be useless. One must keep in mind, however, that there are cases of true food, inhalant and other allergy where cold or heat act as secondary factors, precipitating the allergic reaction.

Antihistaminic drugs are usually effective for these conditions. They are most efficient when used prophylactically, a dose of the medication being taken about one hour preceding the anticipated exposure to heat or cold. A change of climate frequently relieves the syndrome. A tolerance can be frequently produced by varying schemes of daily exposure to cold water followed by warm, or to baths the temperature of which is gradually diminished from day to day. A more complete discussion of the subject may be found in the chapter on allergy to physical agents in Feinberg's "Allergy in Practice," Chicago, Year Book Publishers, 1946.

HEMOLYSIS DUE TO ISOHEMAGGLUTININS

To the Editor:—In routine cross matching prior to a blood transfusion, I have noted that frequently we obtain some hemolysis of the recipient's erythrocytes when the donor serum is added. This occurs chiefly when a Landsteiner group O donor blood is matched with a recipient of another blood group. In these cases, I assume that there is an alpha and/or beta hemolysin present. What do you consider to be the maximum titer of a hemolysin in the donor's serum that can be safely present in a 500 cc. transfusion to a recipient with erythrocytes susceptible to that hemolysin? I have learned that some responsible blood banks inactivate the donor serum at 56 C. for ten minutes in order to eliminate this hemolytic action and thus allow the agglutination reaction, if present, to be manifest. Is this a dangerous procedure? Would it not hide a potential hemolytic reaction in the recipient? What do you consider to be the best cross matching technic for routine purposes that would reveal the agglutinating and hemolyzing properties of the donor serum on the recipient's erythrocytes?

M.D., New York.

ANSWER.—If hemolysis is due to A or B isohemagglutinins, it is usually preceded or accompanied by agglutination. Therefore inactivation of donor serum would probably not hide potential hemolysis from this source. However, in using group O blood for group A, AB or B recipients it is advisable either to add group-specific substances A and B to diminish the isoagglutinin content or to select blood which is already of low isoagglutinin titer; that is, less than 1:200 when tests are carried out in saline solution by the tube-centrifugation method. Recently attention was called to the fact that the isoagglutinin titer of some group O bloods is much higher when AB plasma or serum is used as a diluent than when saline solution is used. It has been suggested that these persons may be dangerous universal donors. Therefore, it may prove advisable to measure isoagglutinin titers in these diluents rather than in saline solution. The best cross matching technic for routine purposes is probably the tube method. However, it is good practice to cross match the blood of persons who have received multiple transfusions or who are suspected of Rh sensitization. The open slide method or the tube method with plasma or saline solution as a diluent to guard against reactions due to the presence of the so-called "blocking" or "hyperimmune" antibodies in the recipient's serum may be used.

PATCH TESTING ON MUCOUS MEMBRANE

To the Editor:—Please describe the technic of patch testing on mucous membranes.

Walter Weinberger, M.D., Juniata, Altoona, Pa.

ANSWER.—Patch testing on mucous membranes is considered when stomatitis is suspected from direct contact with an allergenic substance with the mouth, as with penicillin, tooth paste and similar possible allergens. The technics of such are described fully by Farrington (Modifications of the Goldman Technique for Contact Testing of the Buccal Mucosa, *J. Investig. Dermat.* **8**:59, 1947) and Goldman and Goldman (Contact Testing of the Buccal Mucous Membranes for Stomatitis Venenata *Arch. Dermat. & Syph.* **50**:79, 1944). Briefly, this consists of fastening the allergen with collodion to a small rubber suction cup which is held in place on the surface of the teeth. A modification of this is to fasten the allergen to a rolled up rubber finger cot and to anchor the latter with silk floss around a tooth with the help of a button on the buccal surface of the teeth. The allergen is usually held in place about twenty to thirty minutes. The mucosa on the contacting surface is examined for reactions several hours to a day or two later.

TUBEROUS SCLEROSIS

To the Editor:—A girl, aged 25, has one brother, aged 28, who is epileptic and mentally defective due to tuberous sclerosis—diagnosed by biopsy of a skin lesion on the chest. He was born with the "brown spots" but had no major epilepsy till age 17 and no minor attacks till after that. His father had epileptic attacks at age 17 and had "sick headaches with vomiting" to middle age. The father had 1 brother who had the "brown spots" and one arm shorter than the other. The father has 5 sisters, none of whom had symptoms of tuberous sclerosis so far as is known. The mother's father was "nervous" and died at age 42 of diphtheria; the mother's mother reached the age of 89, the father's mother 70 plus, and the father's father 92.

The girl contemplates marriage and children. With the brother's diagnosis just recently made, she has been told, dogmatically but perhaps correctly, that she must never have children. The girl has shown no sign of tuberous sclerosis or any other physical defect. Her intelligence is at a high level.

Is tuberous sclerosis hereditary? If so is it dominant, recessive or sex linked? What percentage of cases are sporadic? Is there sufficient evidence to condemn this patient to childlessness?

M.D., Canada.

ANSWER.—Authorities consider that tuberous sclerosis is a form of Recklinghausen's disease (neurofibromatosis or congenital ectodermatosis). Associated features of tuberous sclerosis (epiloia) are sebaceous adenoma, brown patches (café au lait), and nevi of the skin, and nodules in kidney, heart (rhabdomyomasa), retina or brain. Pathology of the brain results in epilepsy and mental deterioration. (Yakovlev, P. I., and Guthrie, R. H.; *Arch. Neurol. & Psychiat.* **26**:1145 [Dec.] 1931).

Epiloia is believed to be transmitted as a dominant, not sex linked. As with other serious diseases in which patients die young or fail to have children, the number who owe their disease to mutation and not to inheritance from a parent is relatively large—"from a quarter to a half of all cases encountered." "Transmission through two generations is not infrequent, but transmission through three is distinctly rare." "One person in 60,000 to 120,000 suffers from epiloia as a result of mutation in a parent." (Roberts, J. A. F.: An Introduction to Medical Genetics, London, Oxford University Press, 1940.) The almost complete absence of symptoms of epiloia in relatives of the brother suggests that his epiloia has arisen from mutation. His seizures might be inherited from the father, who had a history of convulsions and migraine. For possible light on this point, the sister might wish to have an electroencephalogram of herself. As the evidence is not clear that the brother's epiloia was transmitted as a dominant through preceding generations and because the young woman possesses genetic traits that are desirable, advice that she remain childless seems hardly justified.

METASTATIC CANCER OF VERTEBRA

To the Editor:—About one year ago a patient had a resection of the descending colon for carcinoma. Recently, she has suffered pains in her back and in one leg. Roentgenograms seem to indicate a recurrence in the fourth and fifth lumbar vertebrae. What is the best treatment of this condition either by roentgen rays or by estrogenic substance?

M.D., New York.

ANSWER.—The pain from skeletal metastasis usually responds well to irradiation therapy. It would seem to be the treatment of choice in the described case. In the light of our present knowledge, estrogenic substances would not be indicated. The usual pain-relieving drugs should be employed as necessary.